

Building Technology III

New York City College of Technology

Course Day 17
Revit Day 09 (Project Day 6)

*The New Academic Building –
Roof Construction : GYM*



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<http://professorpaulking.wordpress.com/>
<http://students.autodesk.com/>

Project Day 06

GYM ROOF

- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

Roof by Footprint

- Pick Walls
- Overview
- Slope (2) Sides
- Overhang
- Wall Attach Top
- Conflicts
- Slope (4) Sides

Truss

- Attach Top / Bottom
- Overview

Roof by Extrusion

- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

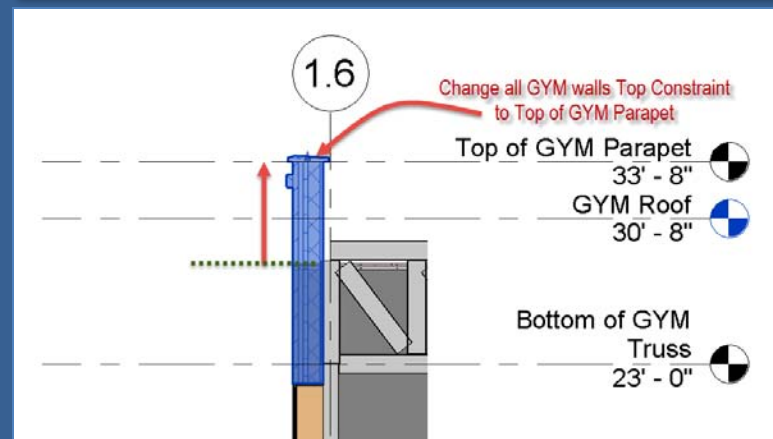
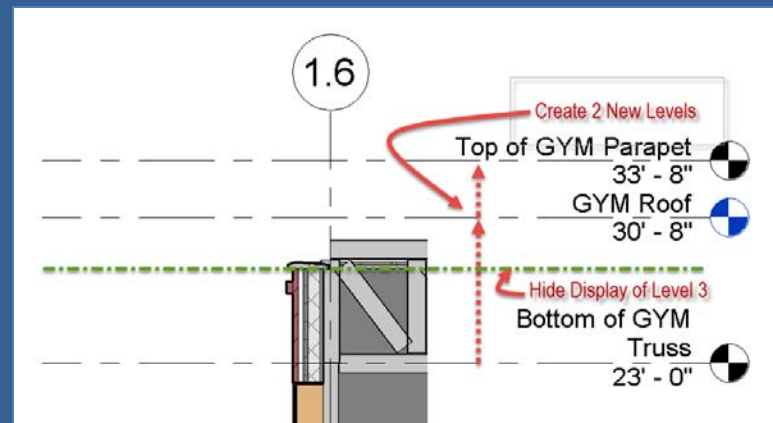
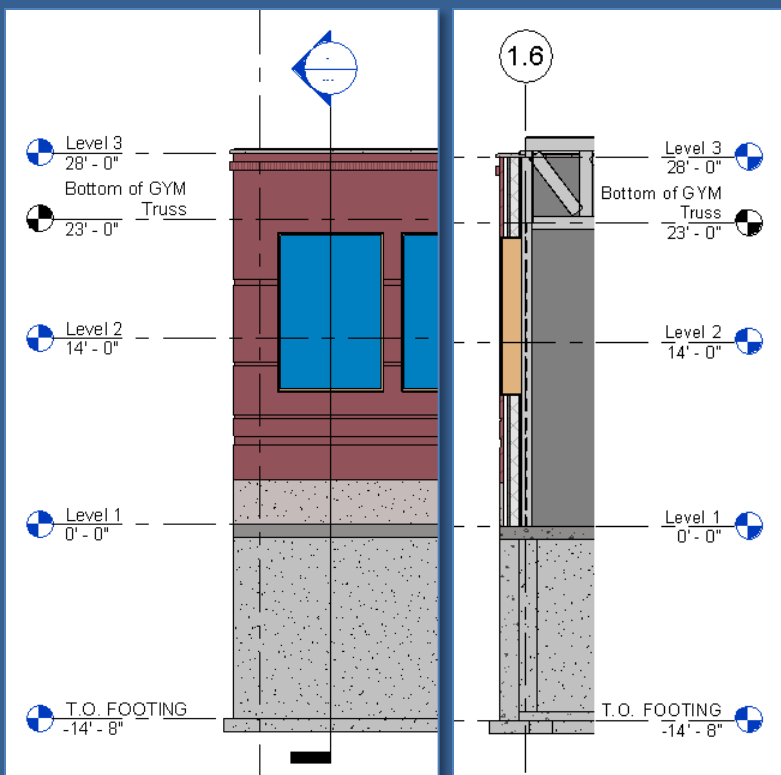
Spline

- Edit Profile
- Update
- Overview

Wrap-Up

GYM Roof : Add New Levels

- Create 2 new levels in elevation or section
- 33'- 8" : Top of GYM Parapet
- 30'- 8" : GYM Roof



- Select all GYM walls and change the “Top Constraint” to “Top of GYM Parapet”

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Roof by Extrusion

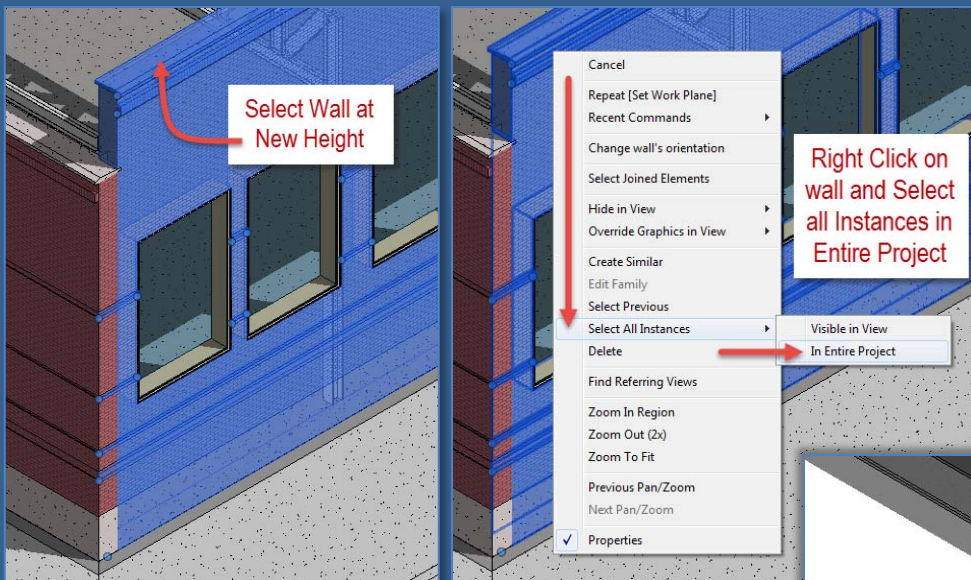
- Delete Roof
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Spline

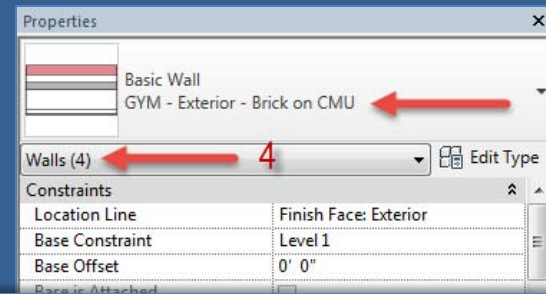
- Edit Profile
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Wrap-Up

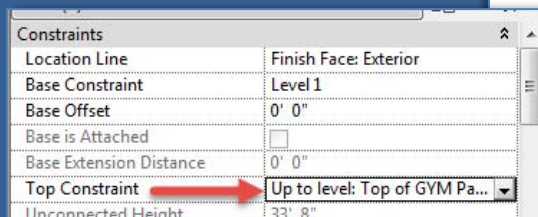
Fix Walls : Select All Instances > In Entire Project



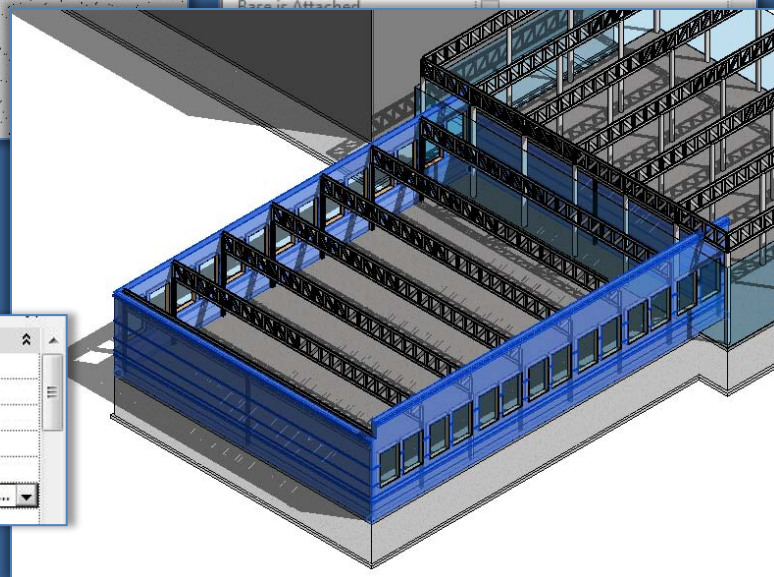
- Properties Box
- Walls (4) Selected



- Select existing masonry wall
- Right Click > Select All Instances > In entire project



- Top Constraint
Up to level : Top of GYM Parapet



Project Day 06

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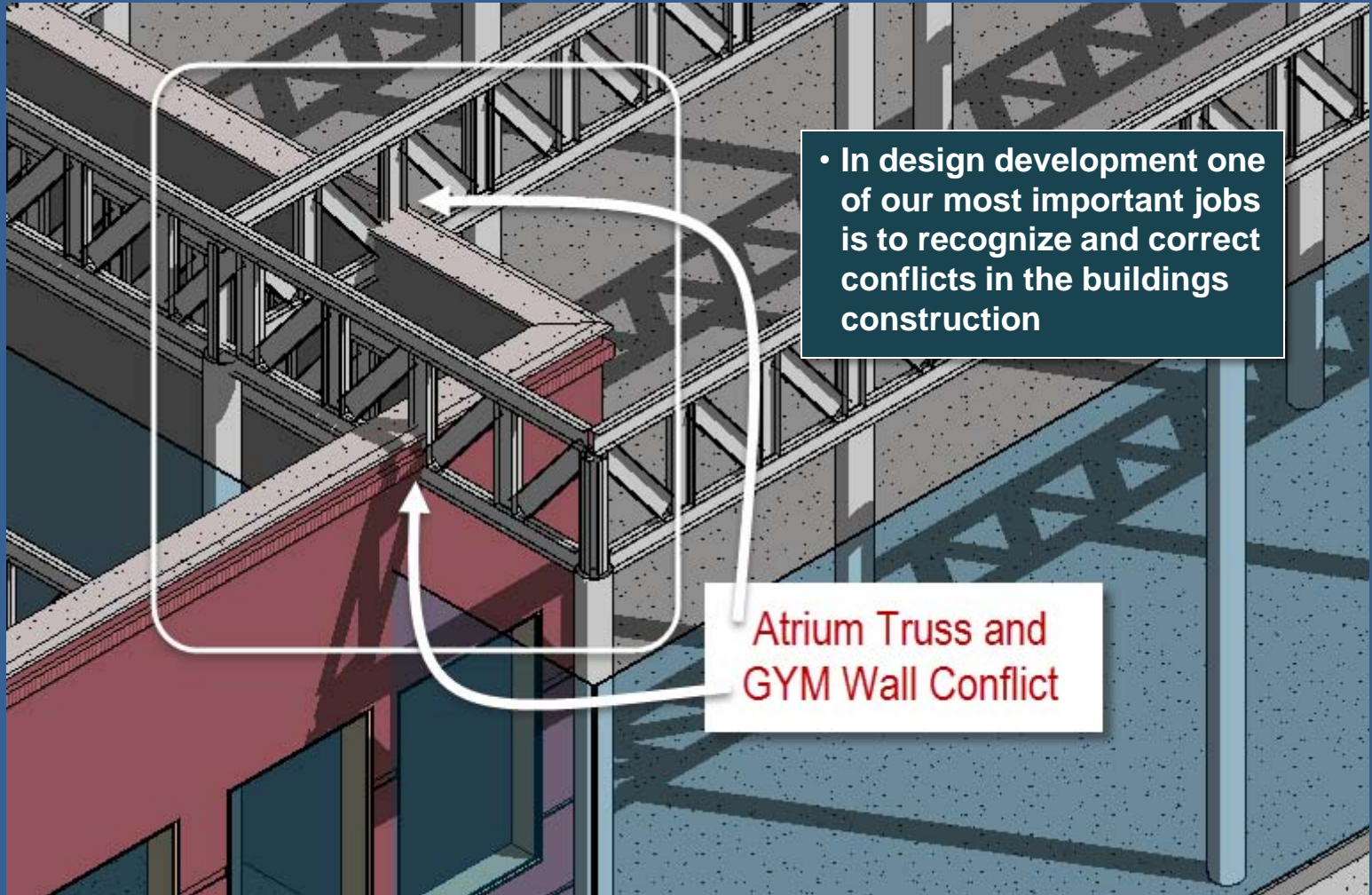
- Delete Roof
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Wrap-Up

Correct Conflict with Atrium Truss



Project Day 06

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Roof by Extrusion

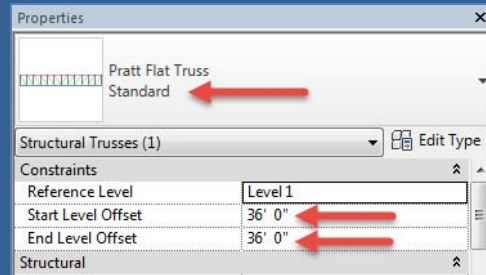
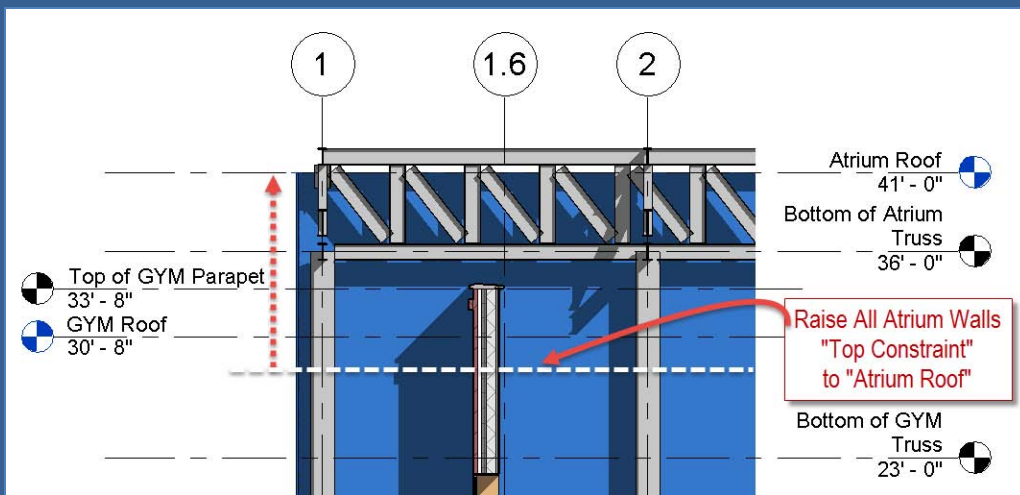
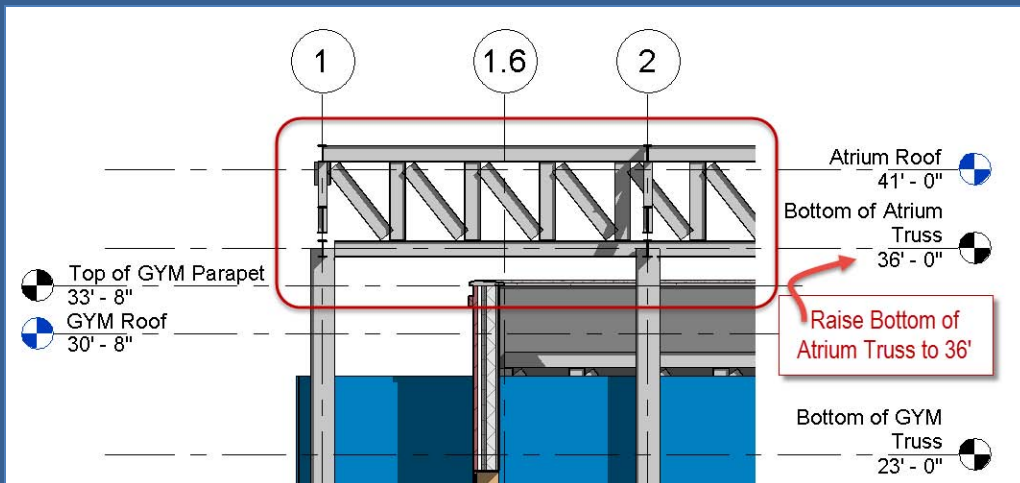
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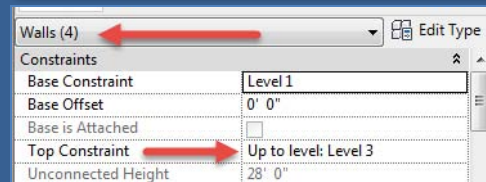
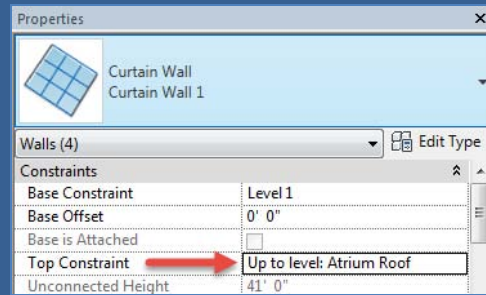
- Edit Profile
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Wrap-Up

Correct Conflict with Atrium Truss



- Select all of the Atrium Trusses and modify:
- Start Level Offset 36'-0"
- End Level Offset to 36'-0"



- Select the Atrium Walls
- Set the "Top Constraint" to "Atrium Roof"

Project Day 06

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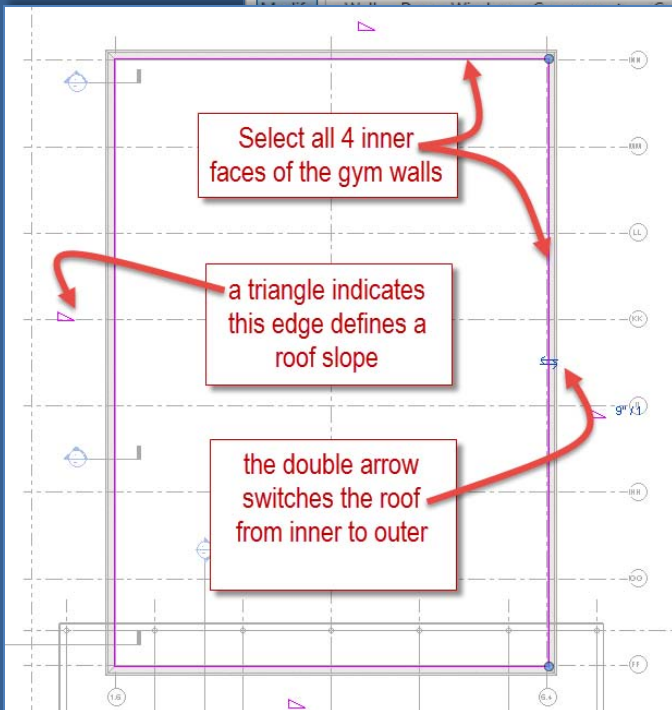
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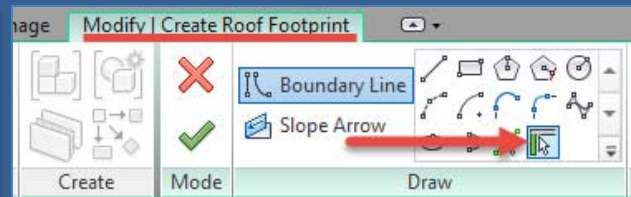
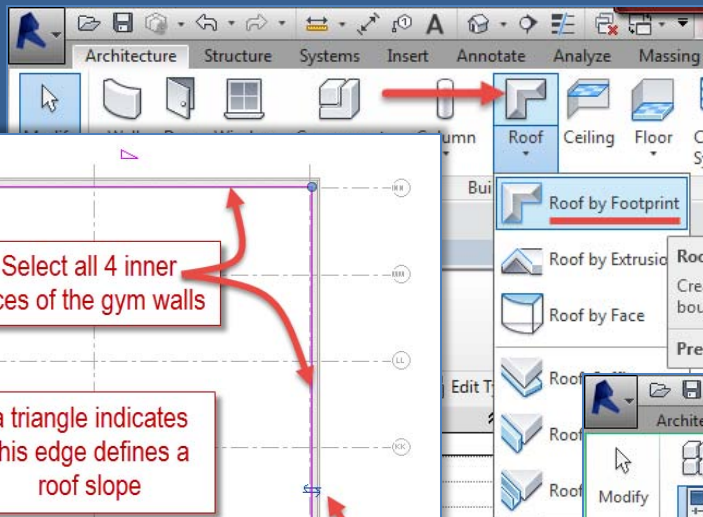
Wrap-Up

Roof by Footprint : Flat Roof : Pick walls

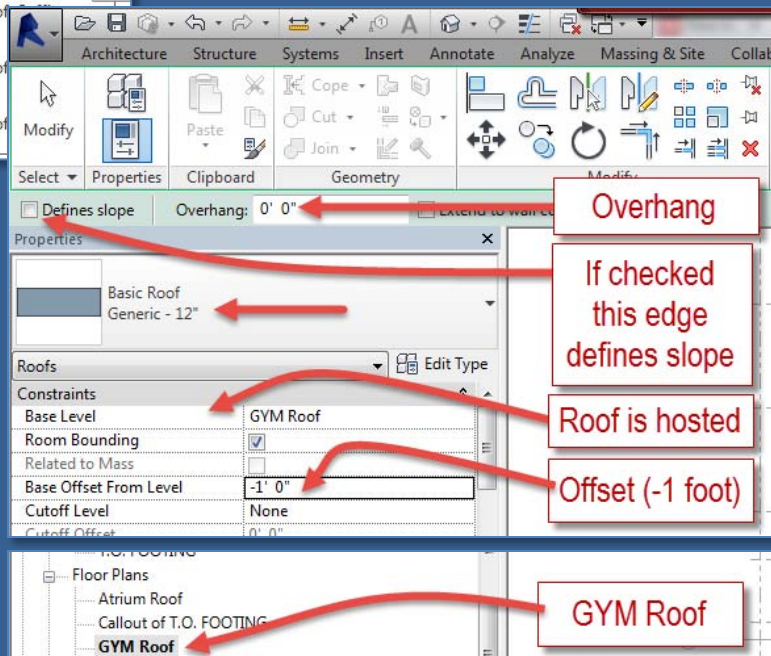
- Set Level
- GYM Roof



- Define Slope Off
- Overhang = 0
- Base Offset (-1')



- Architecture
Roof > Roof by Footprint
- Basic Roof Generic - 12"



Project Day 06

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Roof by Extrusion

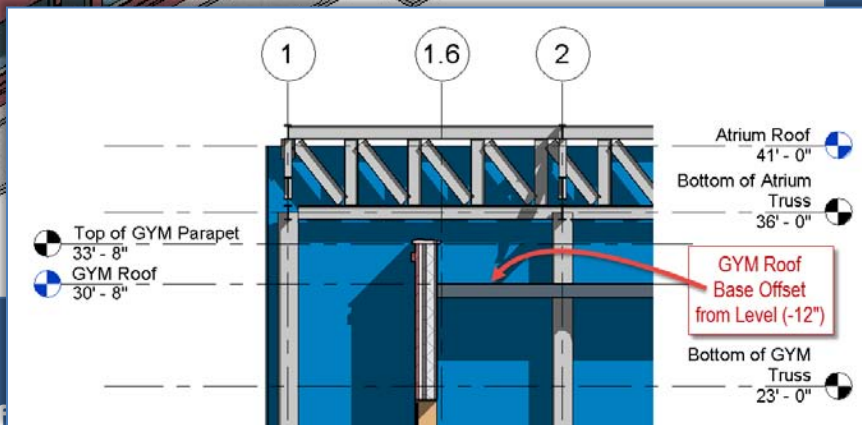
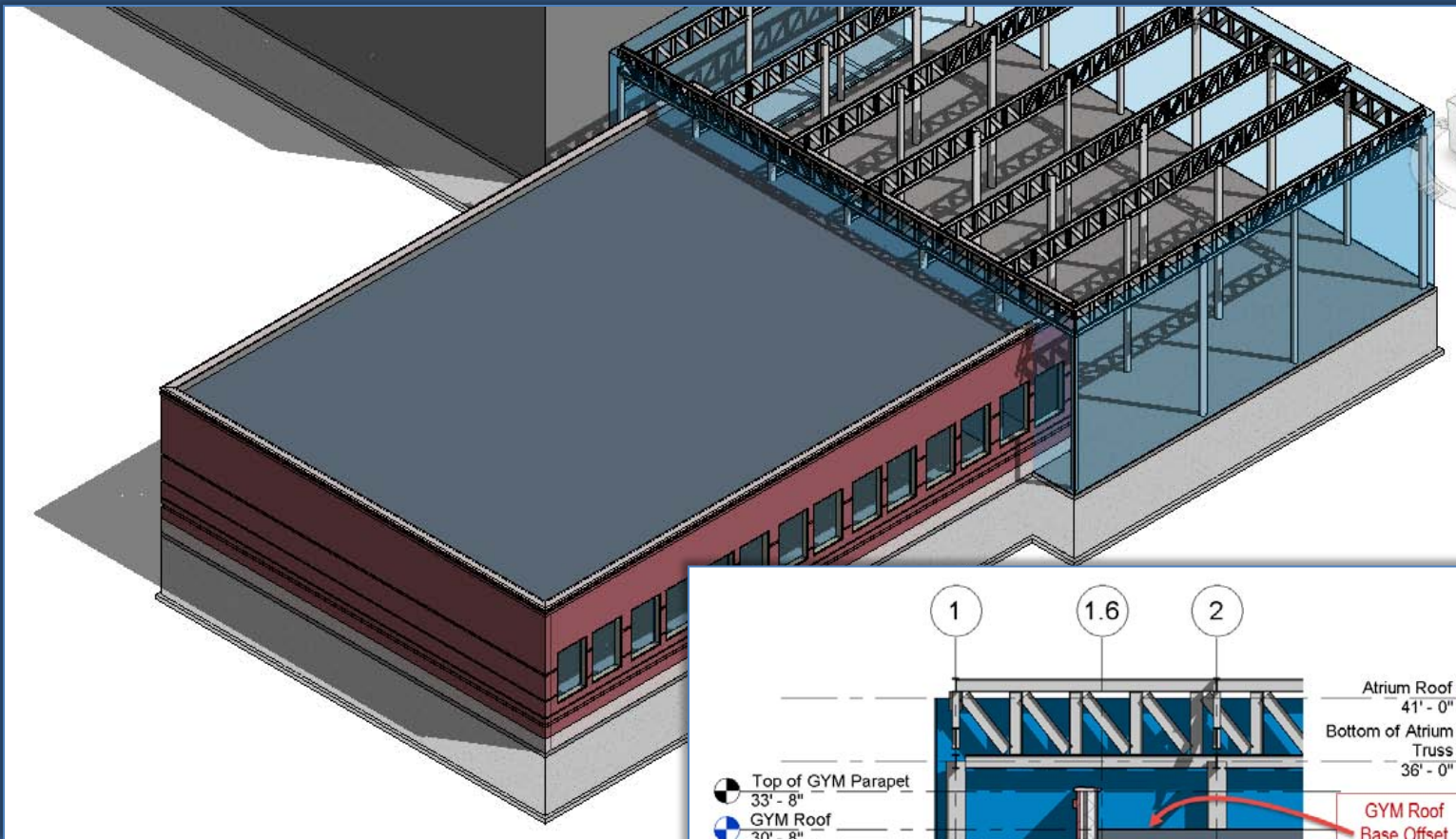
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Wrap-Up

Roof by Footprint : Flat Roof



- Select the Atrium Walls
- Set the "Top Constraint" to "Atrium Roof"

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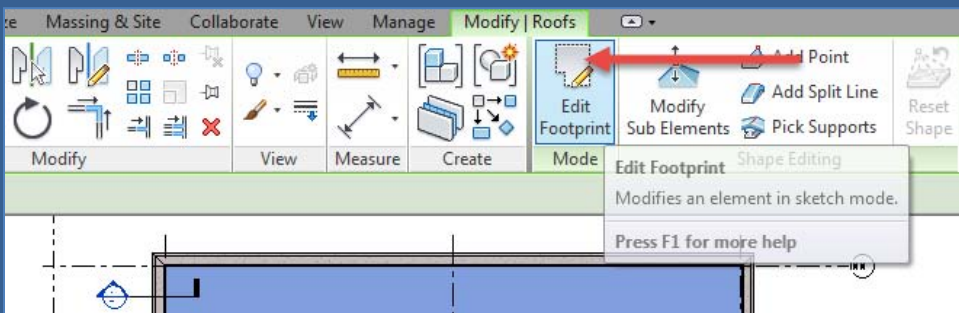
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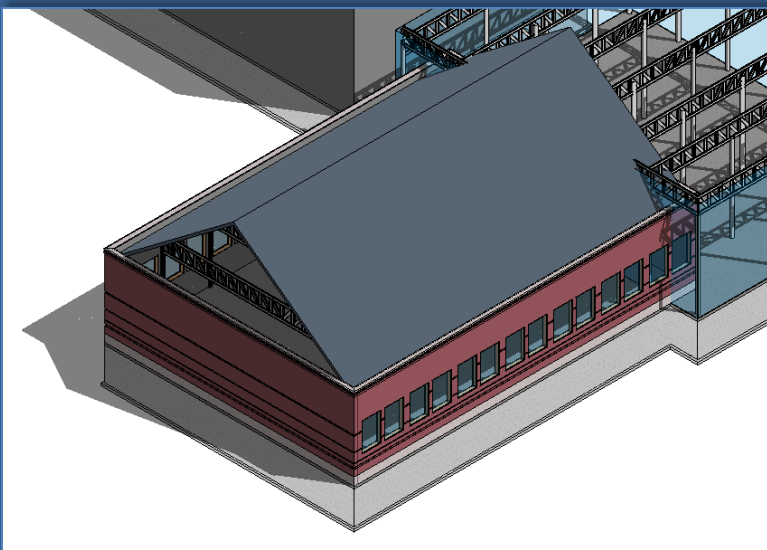
- Edit Profile
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Wrap-Up

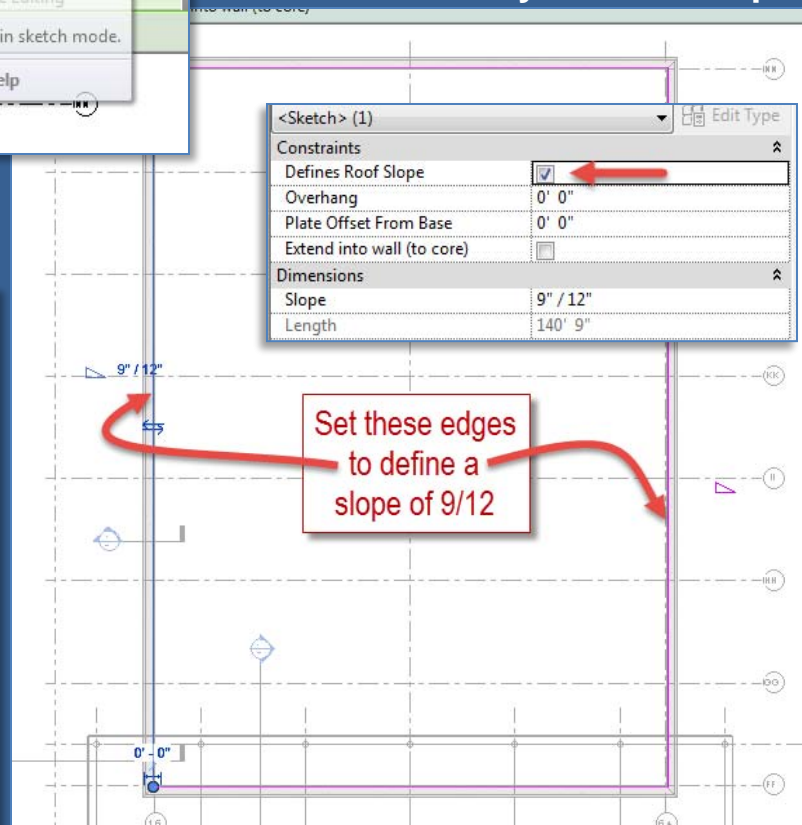
Roof by Footprint : Slope (2) sides



- Select (2) opposite sides
- Check Defines Roof Slope (9"/12")



- Select Roof > Edit Footprint
- You can modify the roof slope



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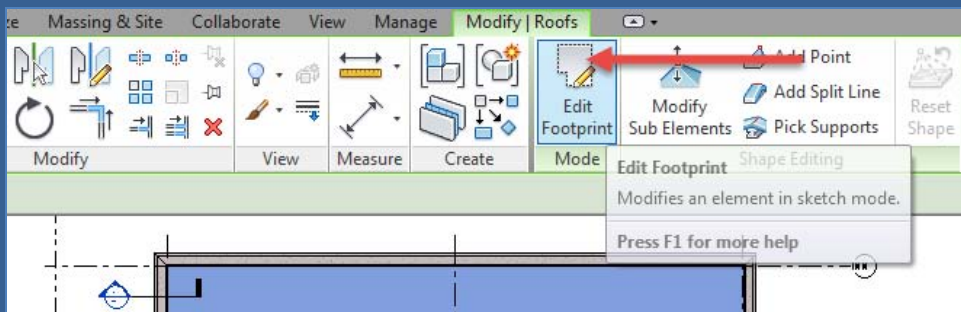
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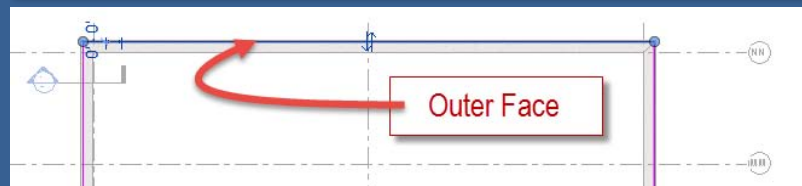
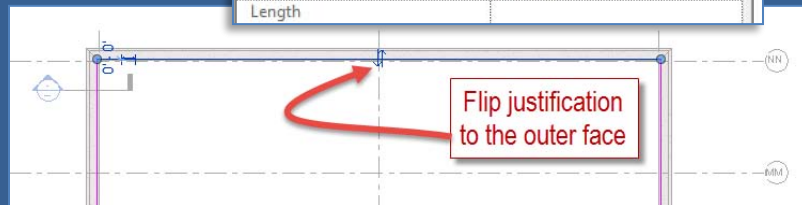
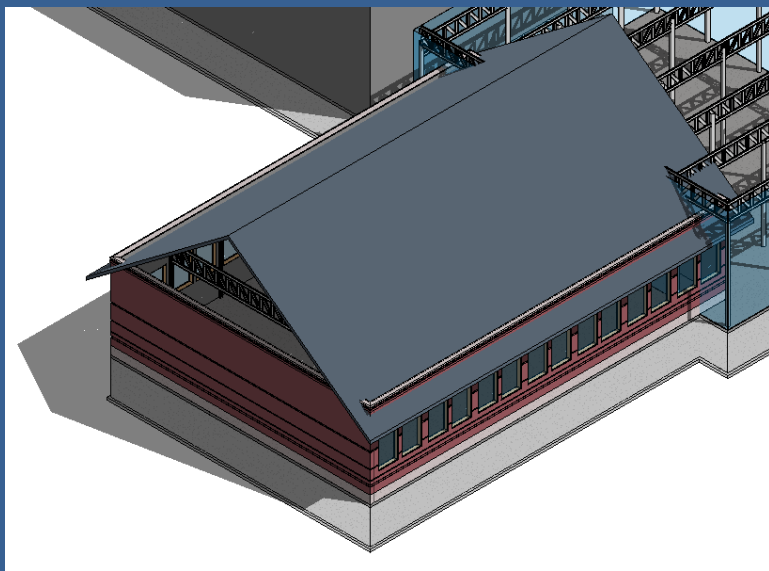
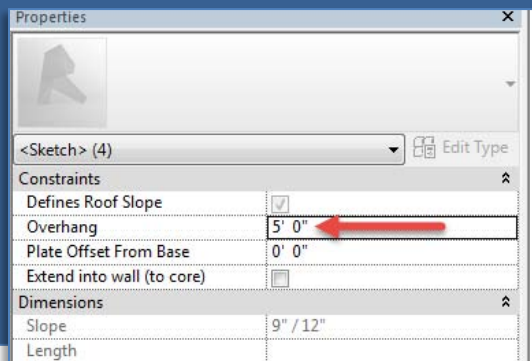
Wrap-Up

Roof by Footprint : Slope (2) sides : Add Overhang



- Select all (4) sides
- Set Overhang to (5'-0")

• Select Roof > Edit Footprint



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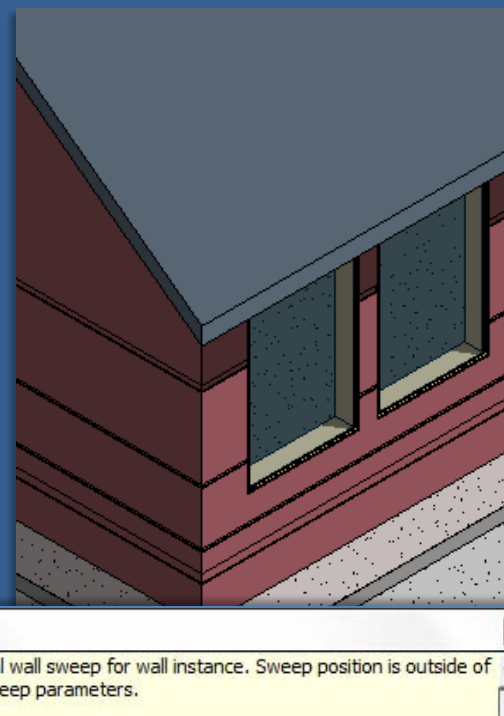
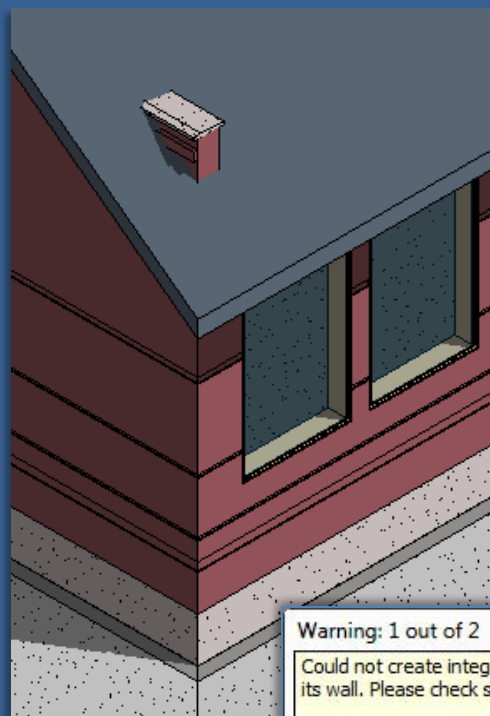
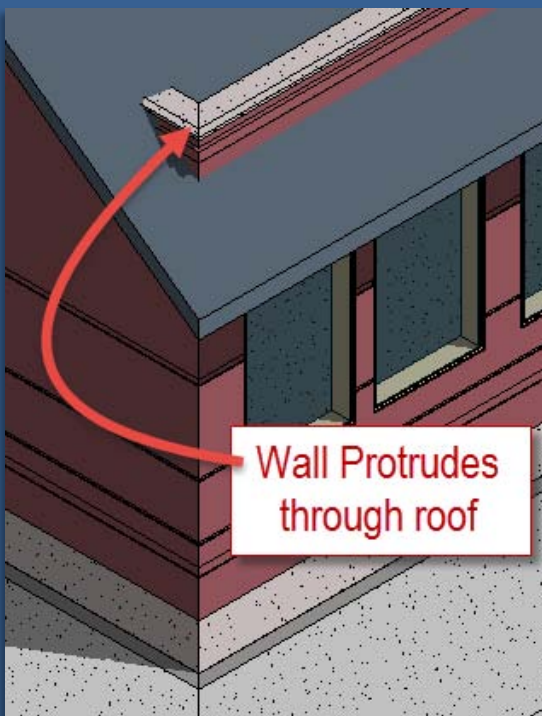
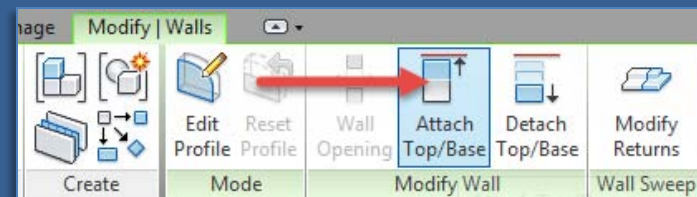
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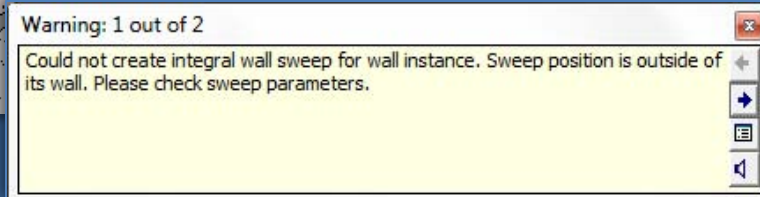
Wrap-Up

Roof by Footprint : Walls : Attach Top / Bottom

- Select Wall
- Attach Top / Bottom
- Select Roof



- Revit will not be able to create integral sweep for coping on North/South Facades



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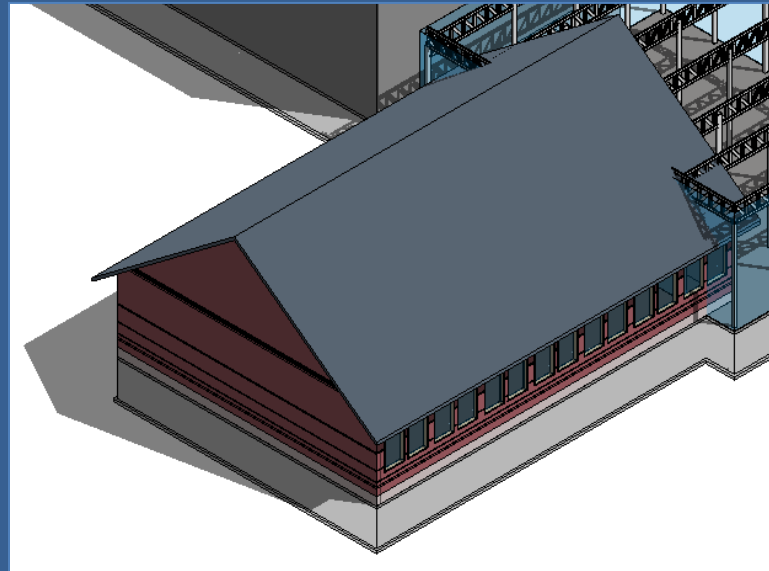
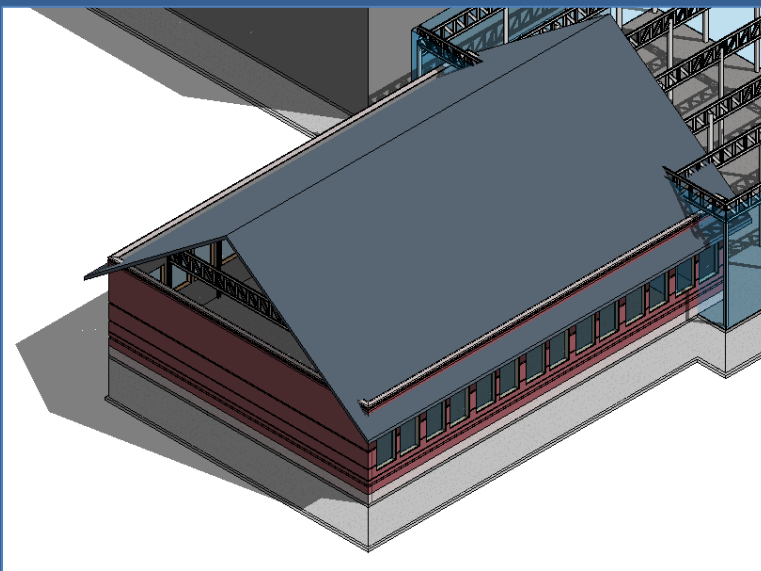
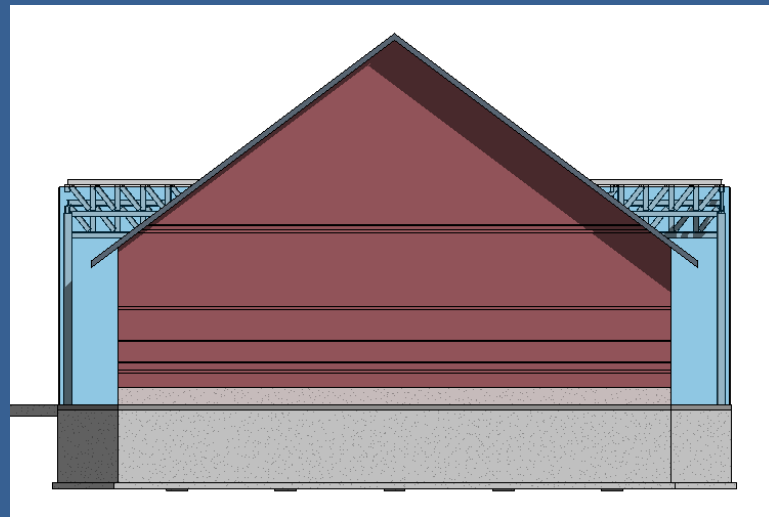
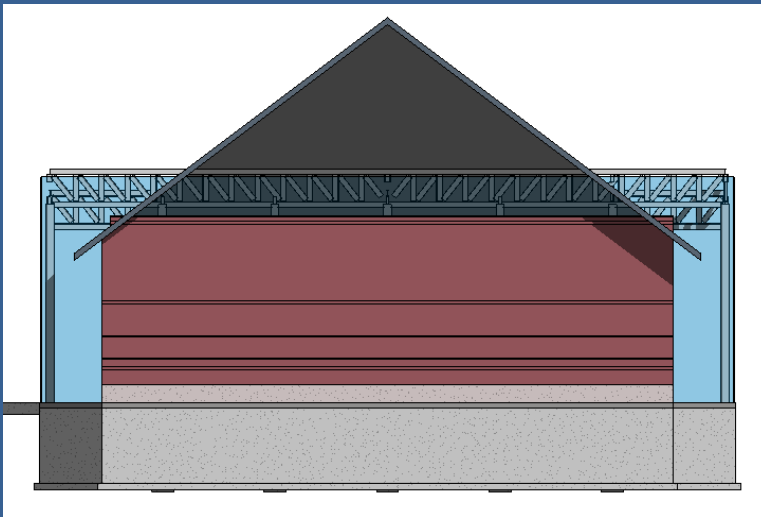
Roof by Extrusion

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Wrap-Up



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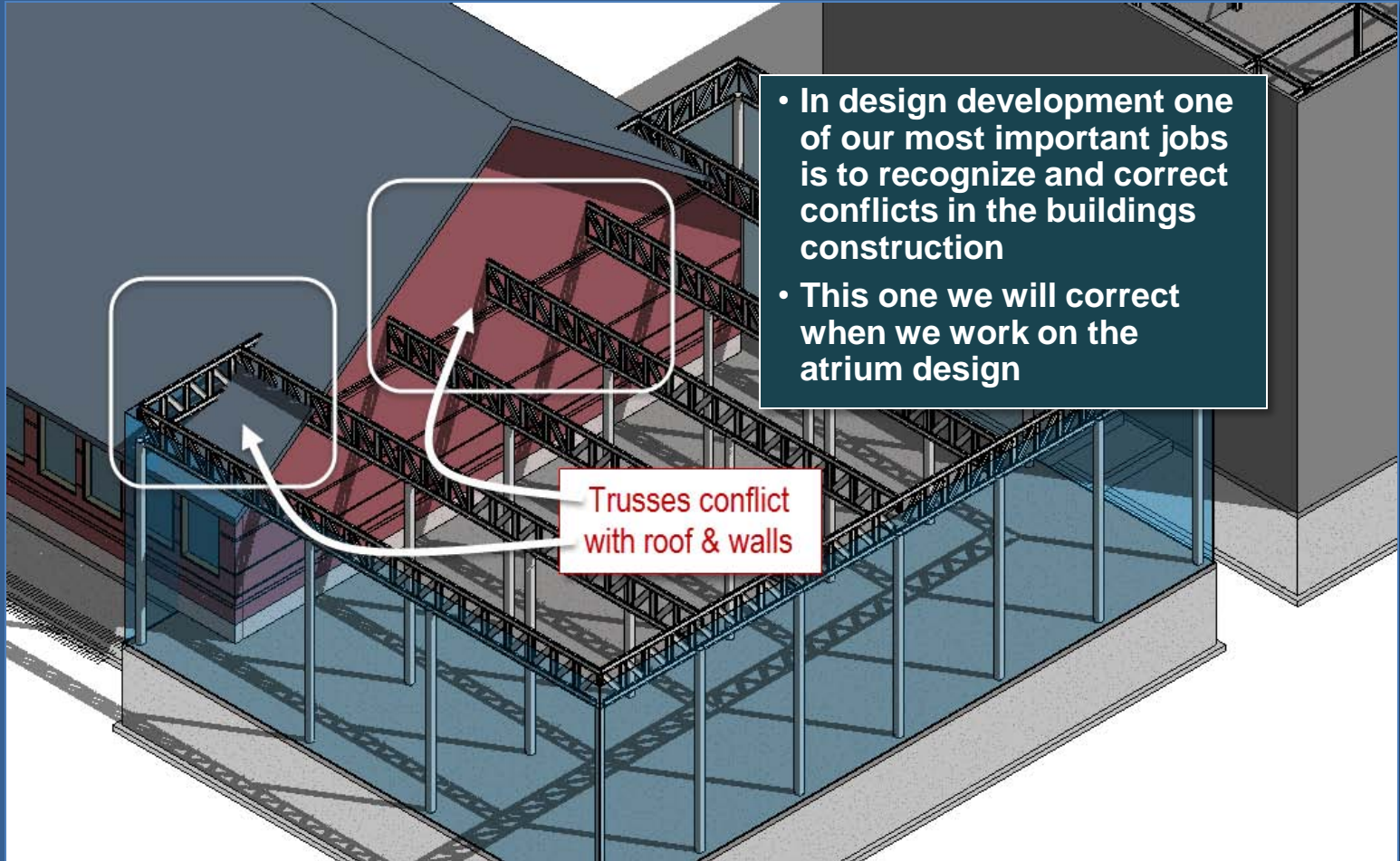
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Wrap-Up

Notice conflict between Trusses, Roof & Walls



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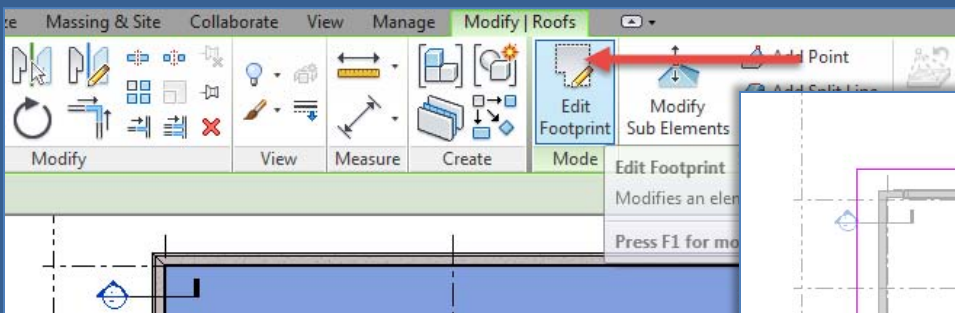
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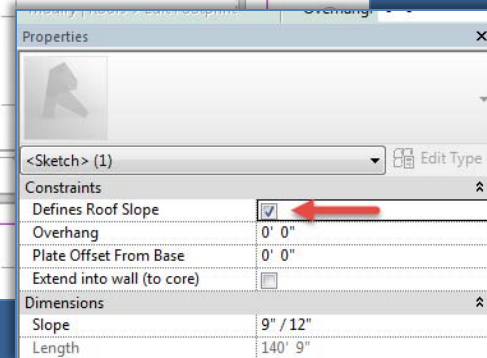
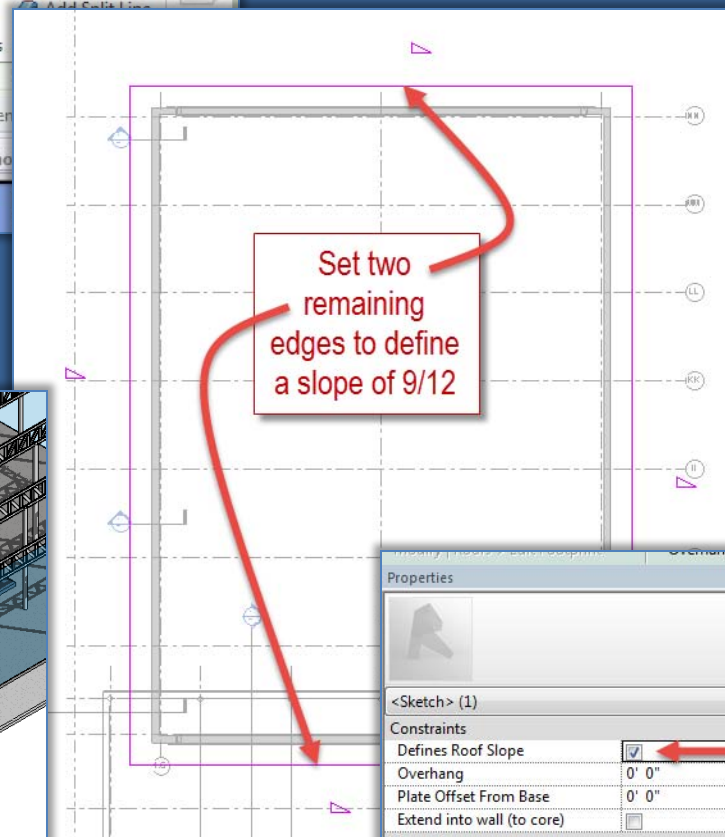
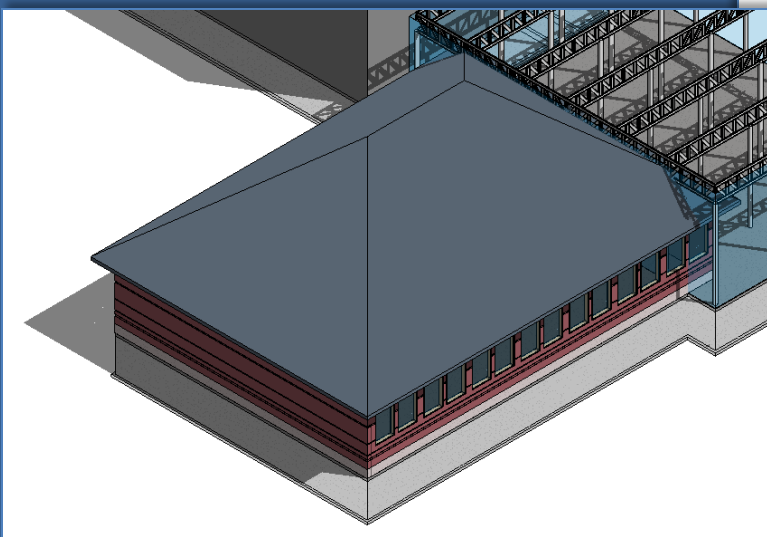
Wrap-Up

Roof by Footprint : Slope (4) sides : w/ Overhang



- Select Roof > Edit Footprint

- Select (2) remaining sides
- Check Defines Roof Slope (9"/12")



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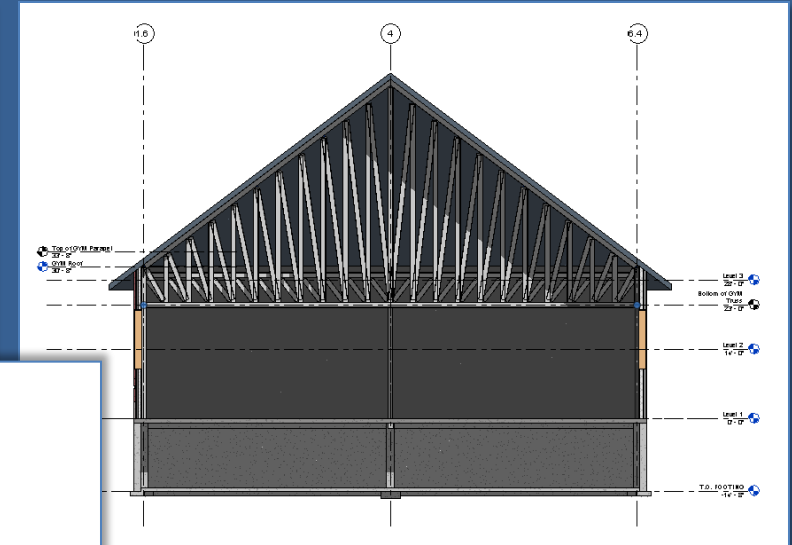
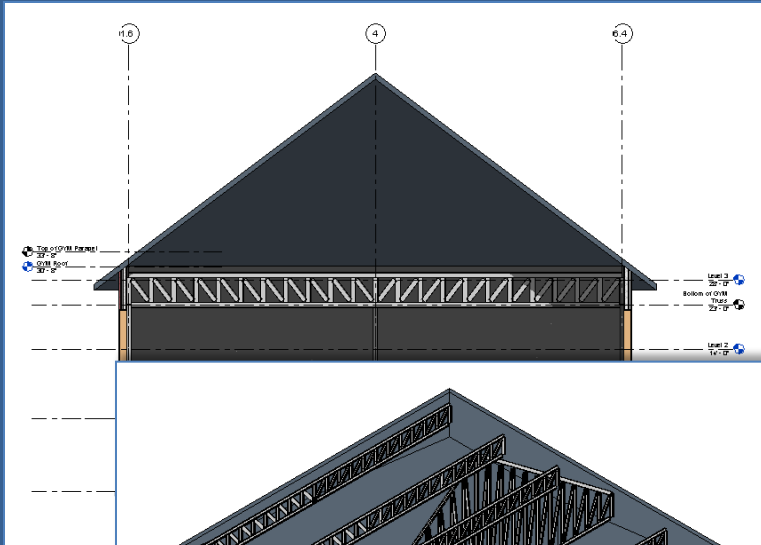
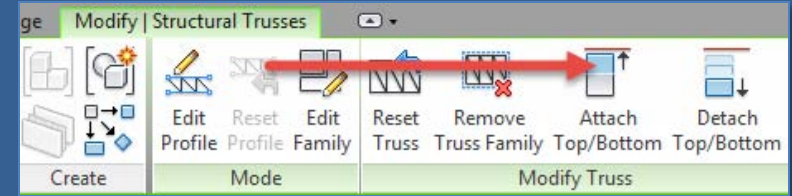
Spline

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Wrap-Up

Truss: Attach Top / Bottom

- Select Truss
- Attach Top / Bottom
- Select Roof



- To work on the remaining trusses you will need to work looking up from below

Project Day 06

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- **Attach Top / Bottom**
- Overview

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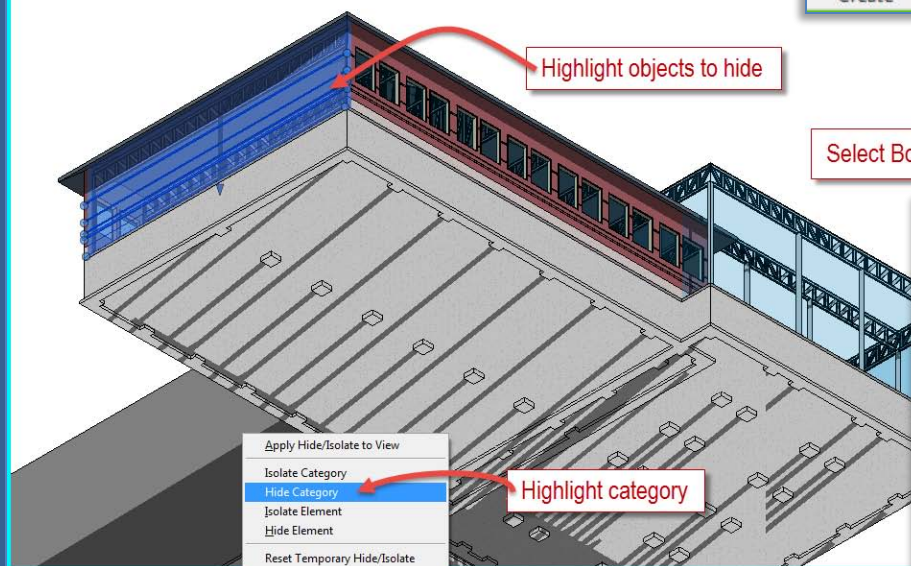
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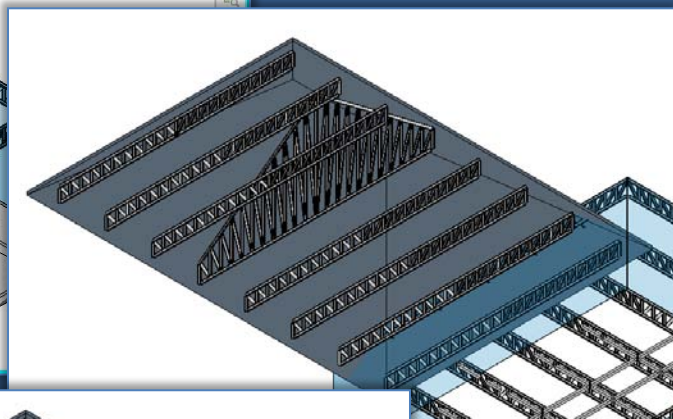
Wrap-Up

Truss: Attach Top/Bottom

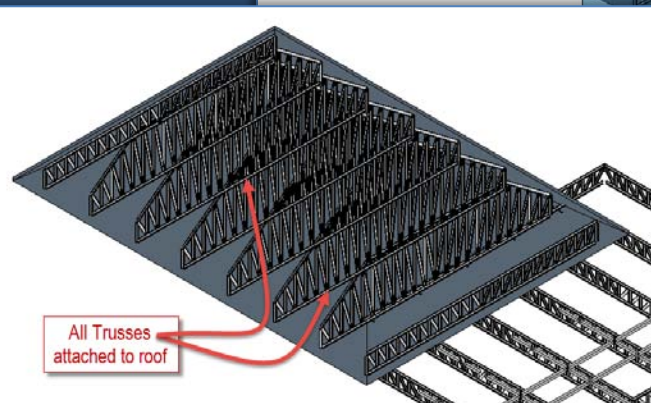
Temporary Hide/Isolate



- Select Truss
- Attach Top / Bottom
- Select Roof



- To work on the remaining trusses you will need to work looking up from below
- View Cube Bottom Corner
- Hide by Category
 - Walls, windows, slabs, foundations, columns



- Hide by Element
- Concrete beams from basement

Roof Trusses

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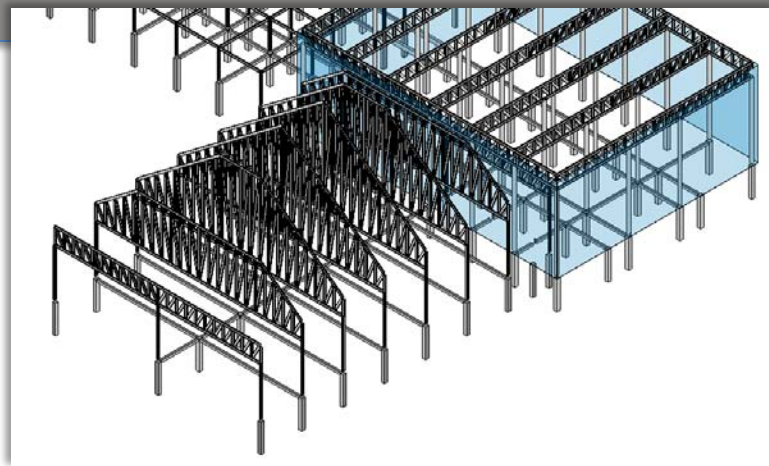
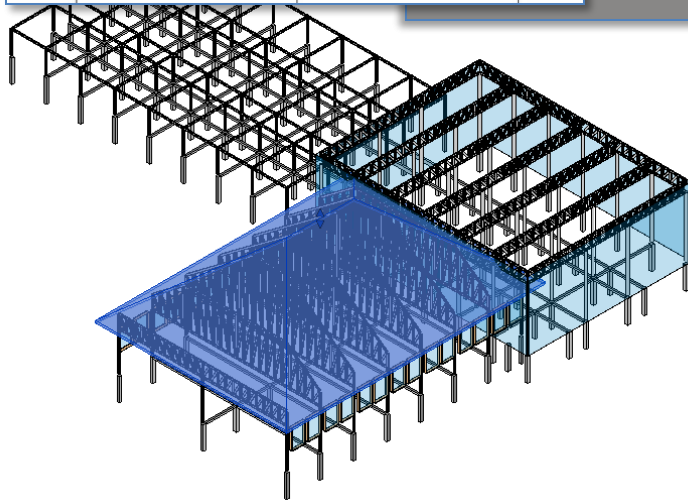
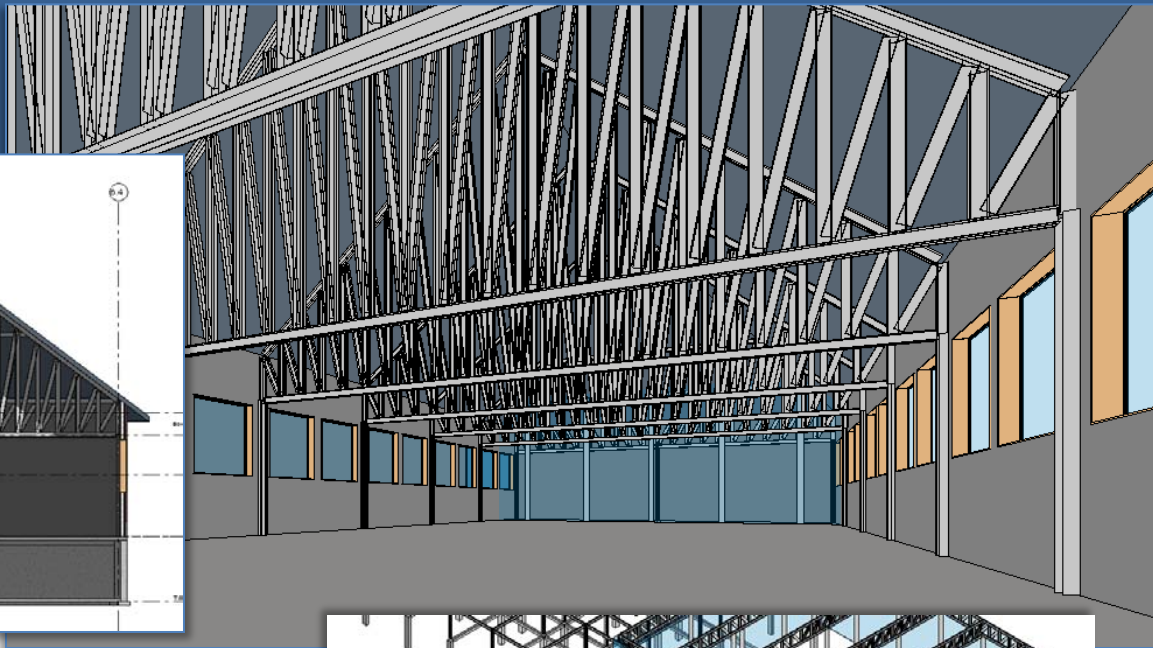
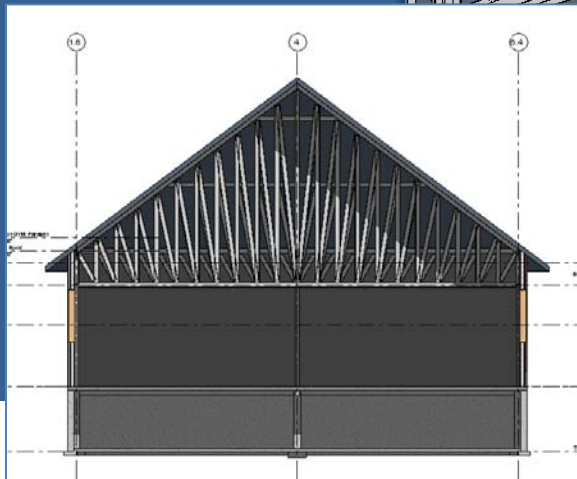
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Wrap-Up



• Various Views

Project Day 06

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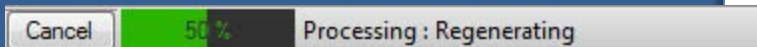
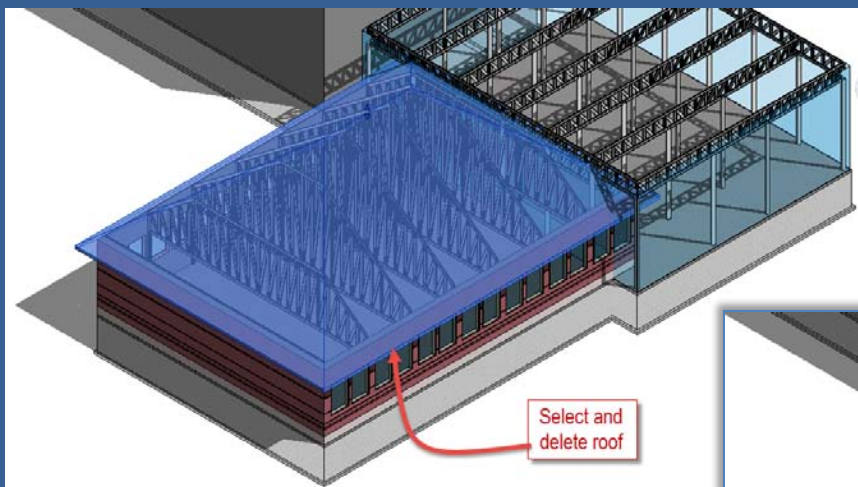
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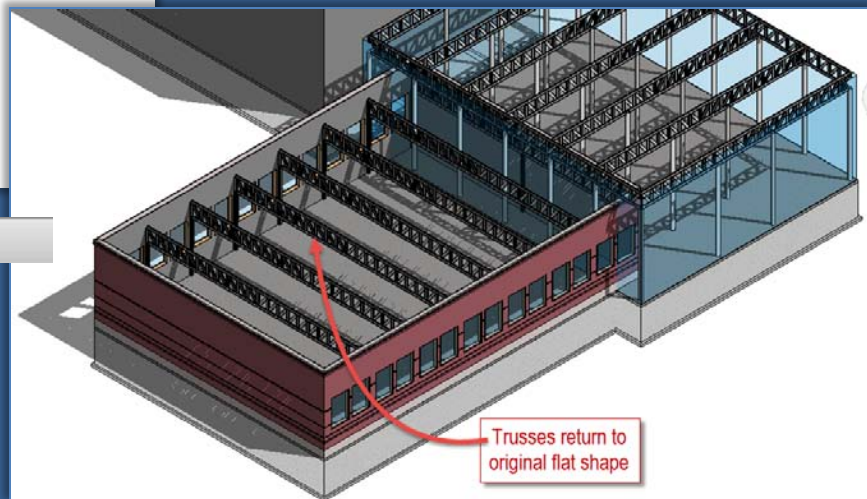
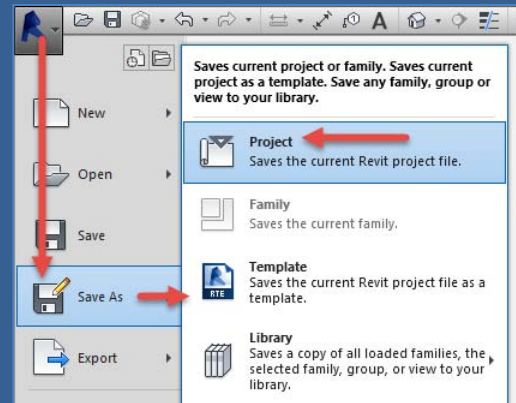
Wrap-Up

Save File then Delete Roof

- Save your file and add the suffix: 4 Pitched roof with trusses
- Save your file and add the suffix : Roof by extrusion ARC
- Select and Delete the roof



- After you delete the roof Revit will need to recalculate walls and trusses that were attached to the roof. You will see the processing.



Project Day 06

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- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

Roof by Footprint

- Pick Walls
- Overview
- Slope (2) Sides
- Overhang
- Wall Attach Top
- Conflicts
- Slope (4) Sides

Truss

- Attach Top / Bottom
- Overview

Roof by Extrusion

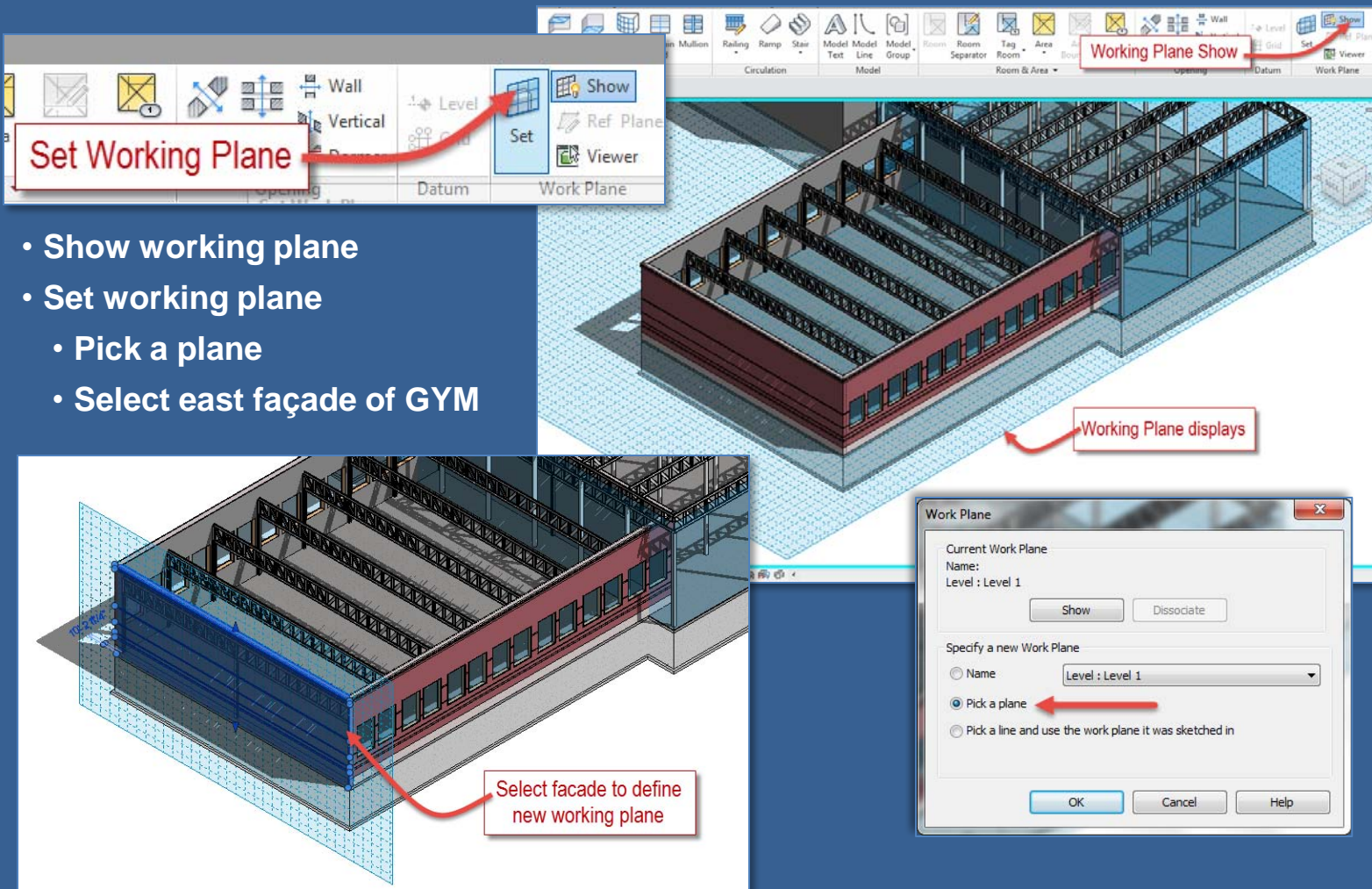
- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

Spline

- Edit Profile
- Update
- Overview

Wrap-Up

GYM Roof : Roof by Extrusion : Set Working Plane



Set Working Plane

- Show working plane
- Set working plane
 - Pick a plane
 - Select east façade of GYM

Working Plane Show

Working Plane displays

Select facade to define new working plane

Work Plane

Current Work Plane
Name:
Level : Level 1

Show Dissociate

Specify a new Work Plane

☐ Name Level : Level 1

☒ Pick a plane

☐ Pick a line and use the work plane it was sketched in

OK Cancel Help

Project Day 06

GYM ROOF

- Add Levels
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- Slope (4) Sides

Truss

- Attach Top / Bottom
- Overview

Roof by Extrusion

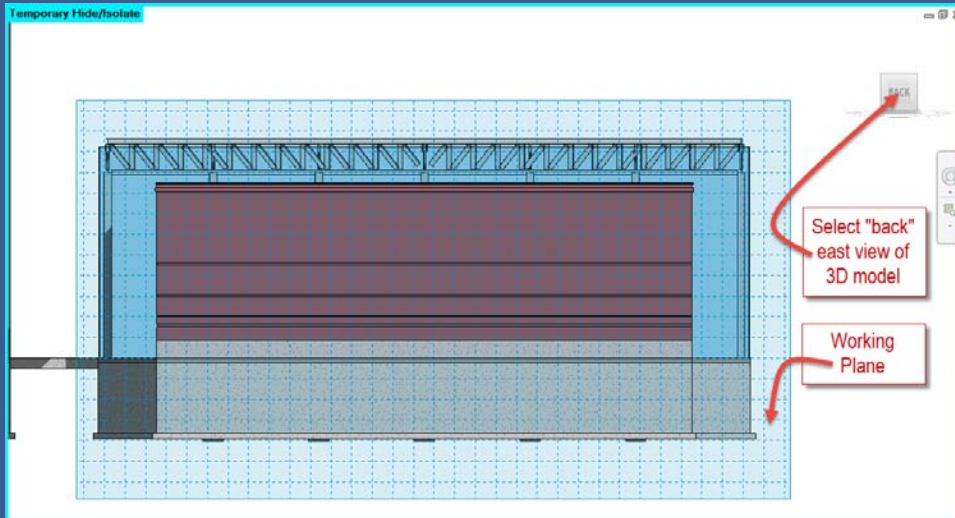
- Delete Roof
- Set Working Plane
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- Attach Top / Bottom
- Overview

Spline

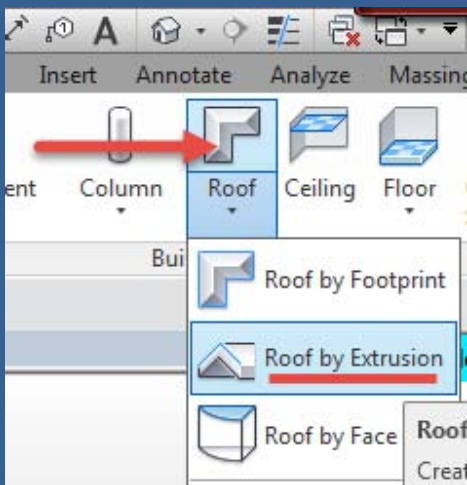
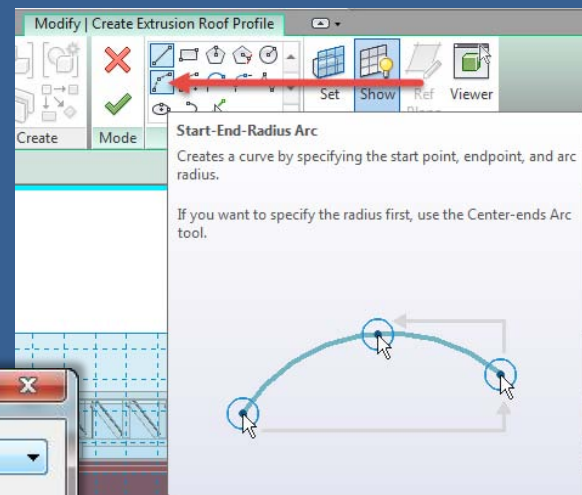
- Edit Profile
- Update
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Wrap-Up

GYM Roof : Roof by Extrusion Start-End-Radius Arc



- Default 3D View
- Set working plane to façade
- Go to “back” or “east” view



- Roof > Roof by extrusion
- Level : GYM Roof

- Start-End-Radius Arc

Project Day 06

GYM ROOF

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Roof by Footprint

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Roof by Extrusion

- Delete Roof
- Set Working Plane
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- Attach Top / Bottom
- Overview

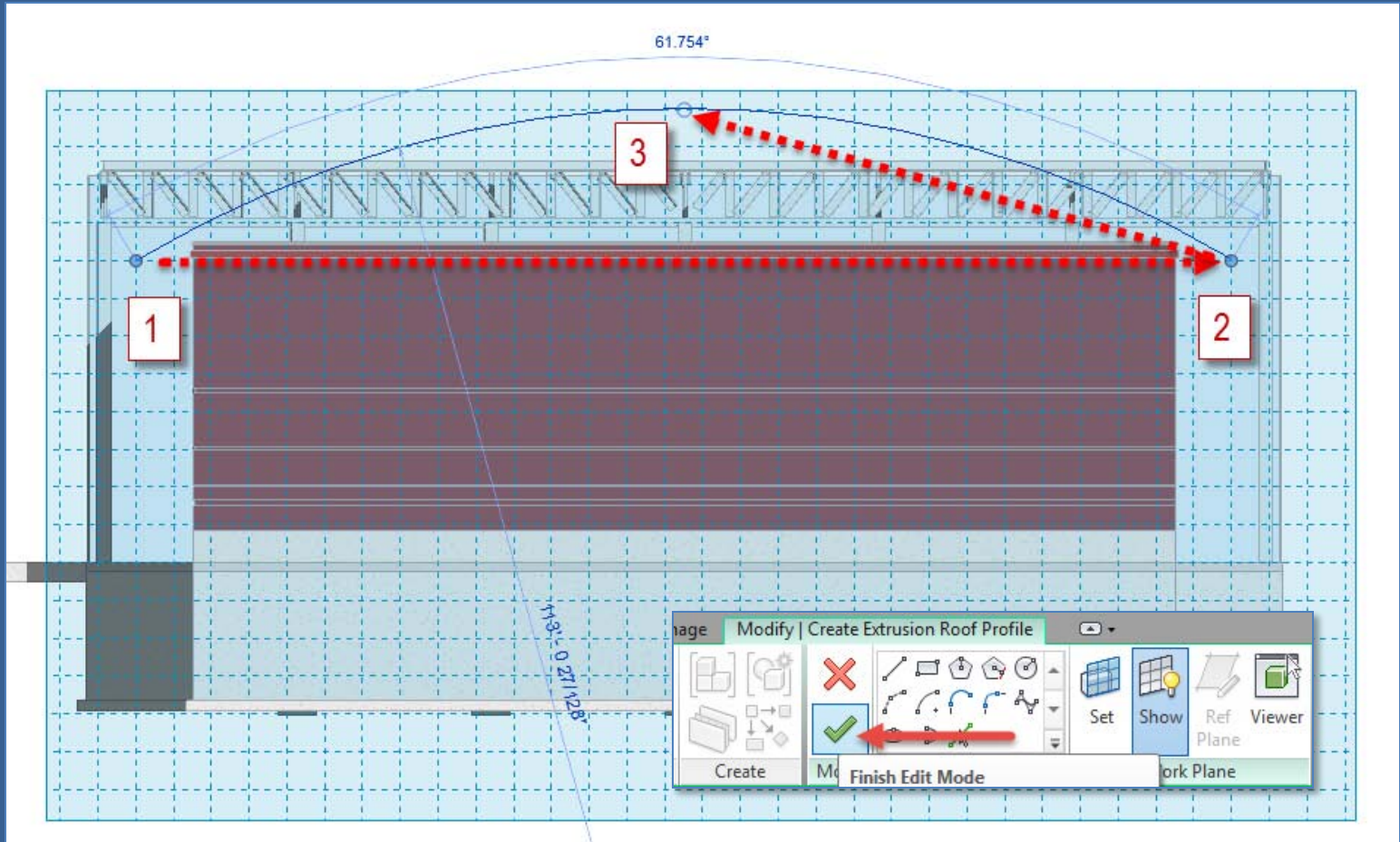
Spline

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Wrap-Up

GYM Roof : Roof by Extrusion Start-End-Radius Arc

- Start-End-Radius Arc : Draw in order from 1 to 2 (width of arc) to 3 (height of arc)



Project Day 06

GYM ROOF

- Add Levels
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Roof by Footprint

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Truss

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Roof by Extrusion

- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

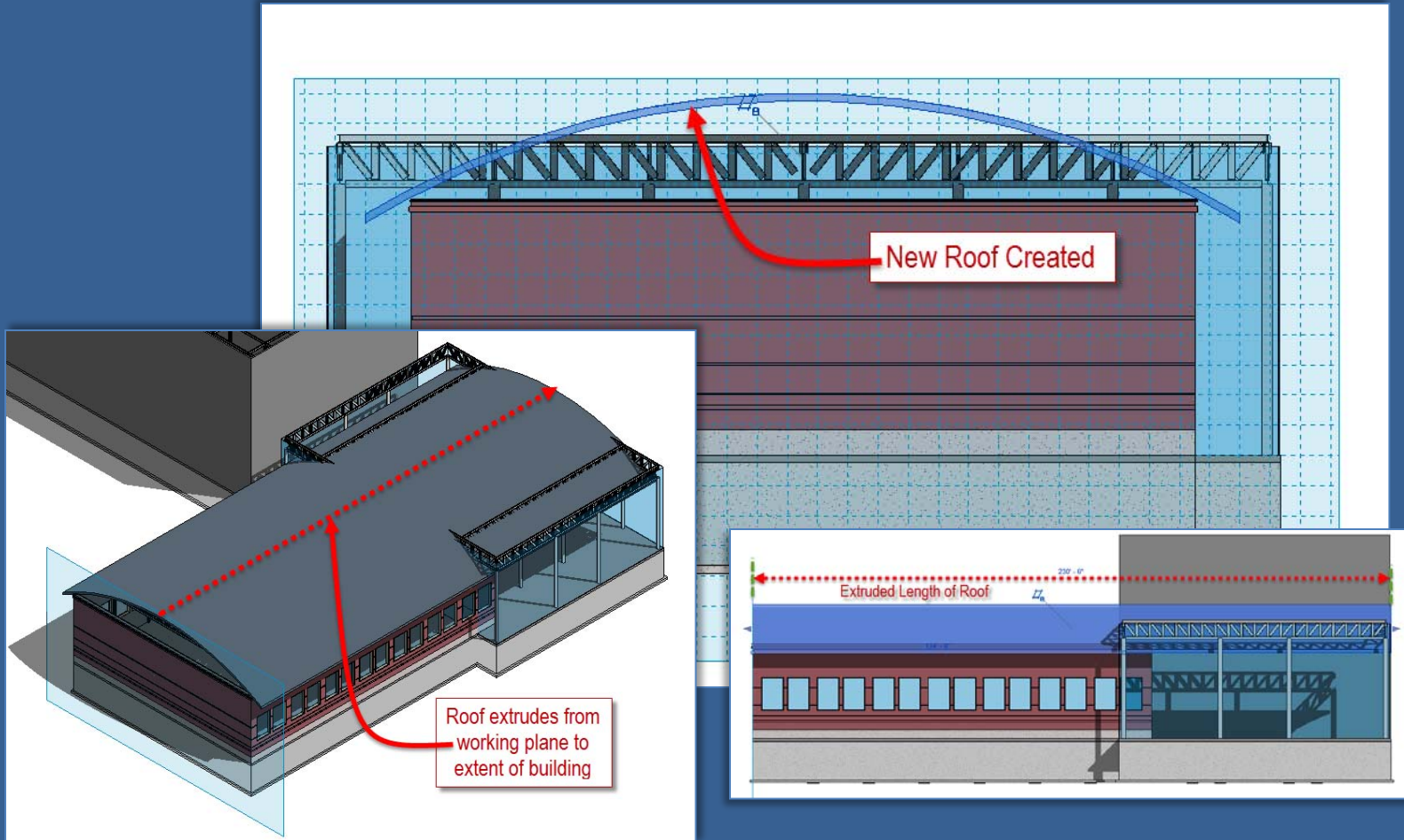
Spline

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Wrap-Up

GYM Roof : Roof by Extrusion Start-End-Radius Arc

- Roof extrudes from working plane to extent of building



Project Day 06

GYM ROOF

- Add Levels
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Roof by Footprint

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Roof by Extrusion

- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

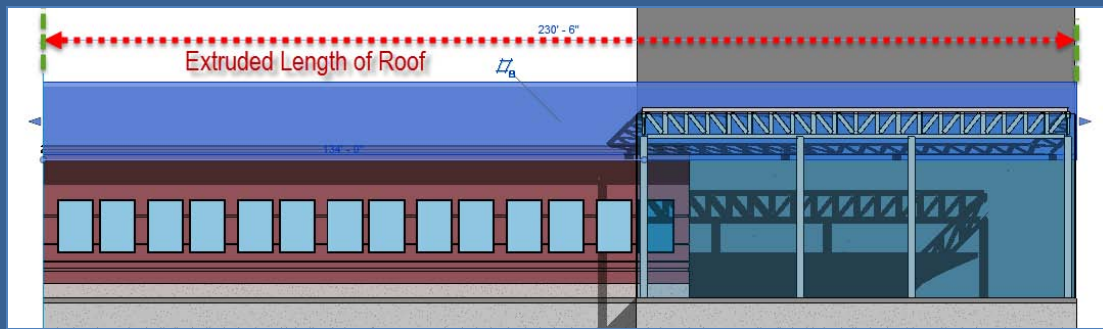
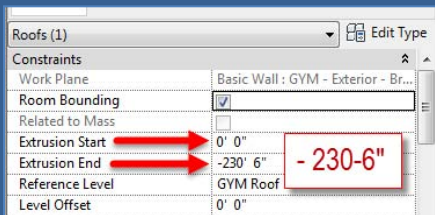
Spline

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- Overview

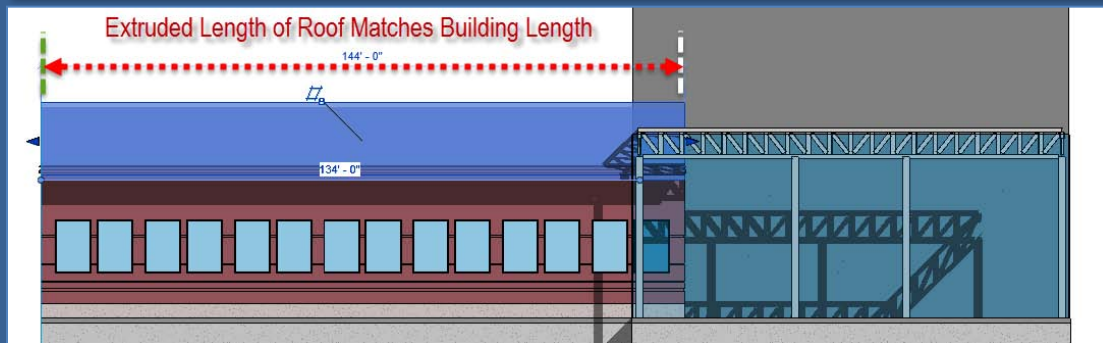
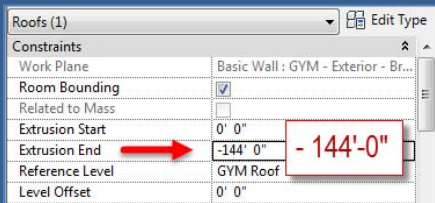
Wrap-Up

GYM Roof : Roof by Extrusion Start-End-Radius Arc

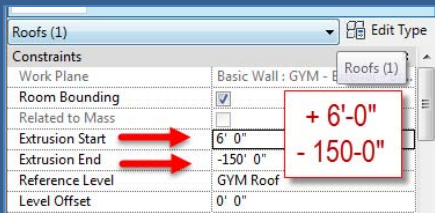
- Extrusion Start (0'-0")
- Extrusion End (-230'-6")



- Extrusion Start (0'-0")
- Extrusion End (-144'-0")



- Extrusion Start (6'-0")
- Extrusion End (-150'-0")



Project Day 06

GYM ROOF

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Roof by Footprint

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Truss

- Attach Top / Bottom
- Overview

Roof by Extrusion

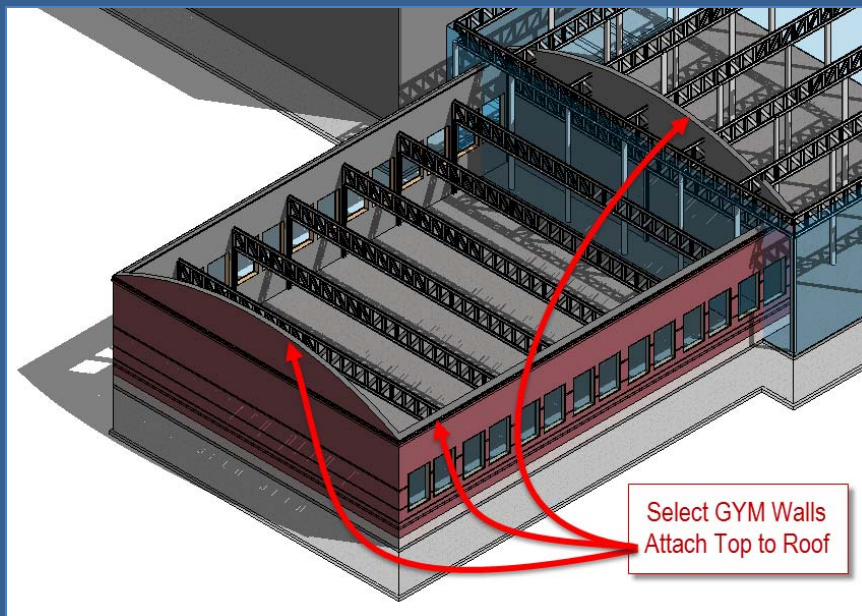
- Delete Roof
- Set Working Plane
- Start-End-Radius
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- Attach Top / Bottom
- Overview

Spline

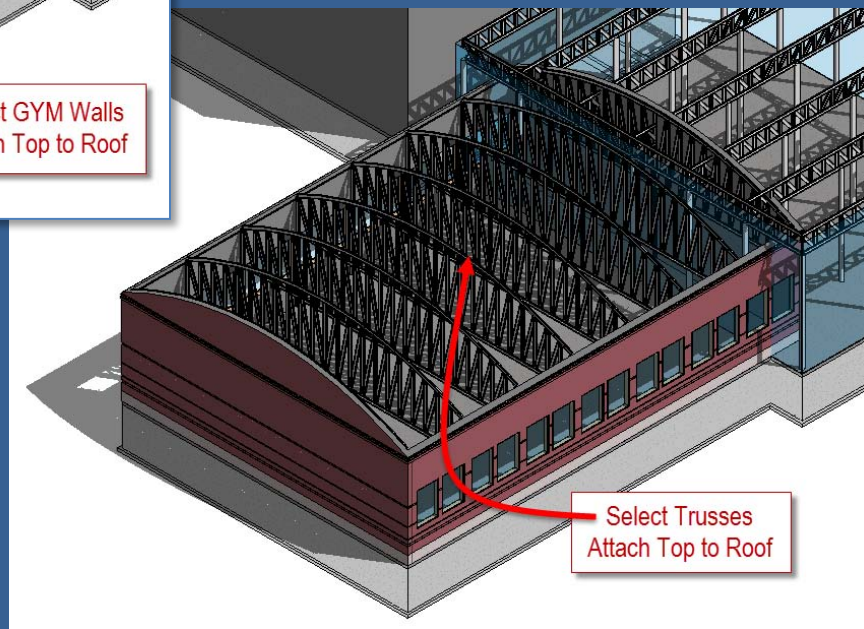
- Edit Profile
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Wrap-Up

GYM Roof : Roof by Extrusion Attach Top Bottom



- Select all (4) GYM walls
- Attach Top / Bottom
- Select GYM Roof



- Select all (4) GYM Trusses
- Attach Top / Bottom
- Select GYM Roof

Project Day 06

GYM ROOF

- Add Levels
- Fix Walls
- Conflict
- Fix Atrium Truss

Roof by Footprint

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Roof by Extrusion

- Delete Roof
- Set Working Plane
- Start-End-Radius
- Extrusion Length
- Attach Top / Bottom
- Overview

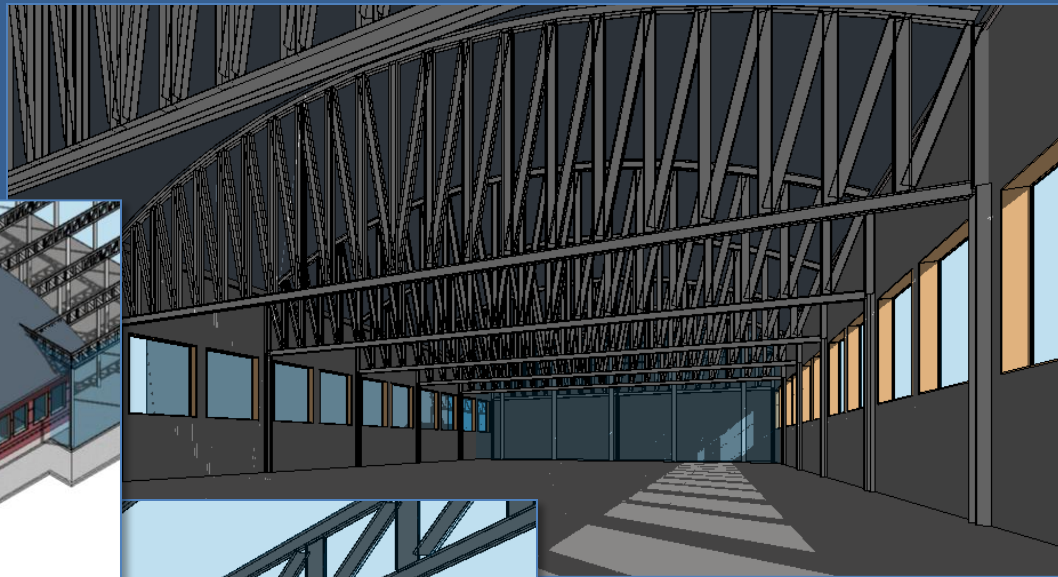
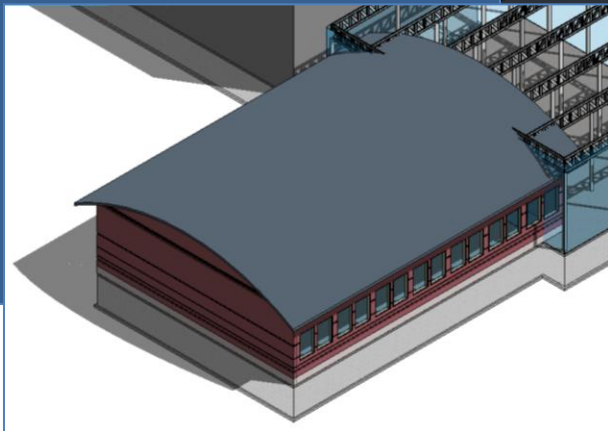
Spline

- Edit Profile
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- Overview

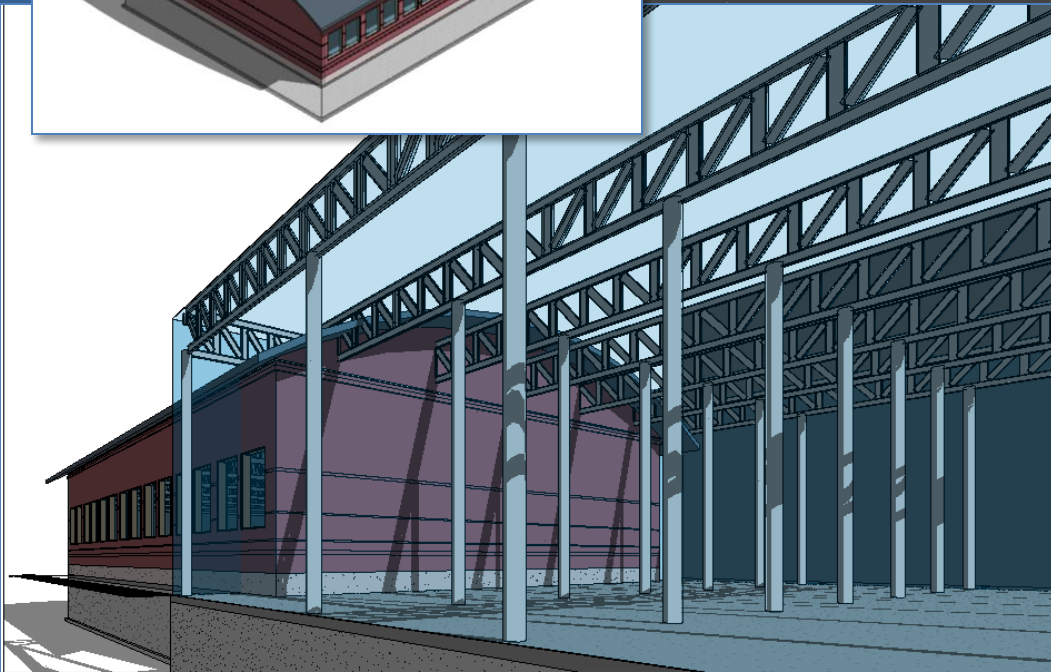
Wrap-Up

Arched Roof

- Isometric



- Interior View



- Exterior View

Project Day 06

GYM ROOF

- Add Levels
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Roof by Footprint

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Roof by Extrusion

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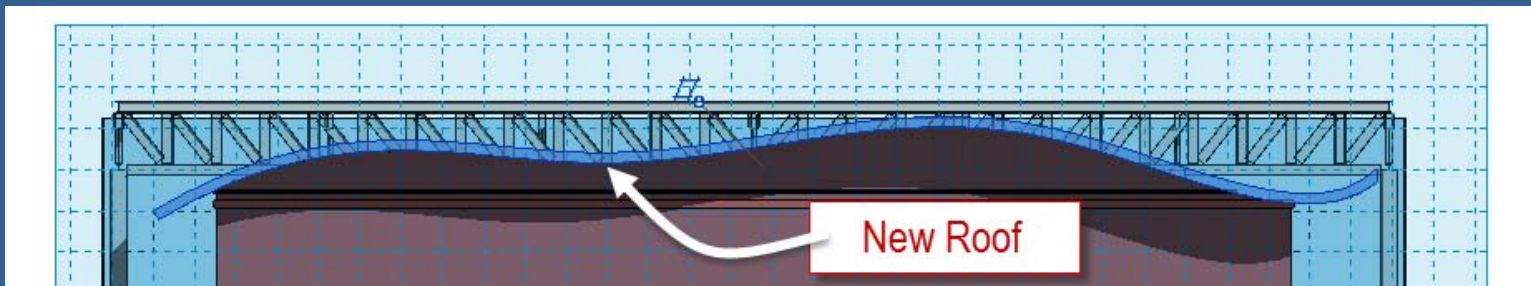
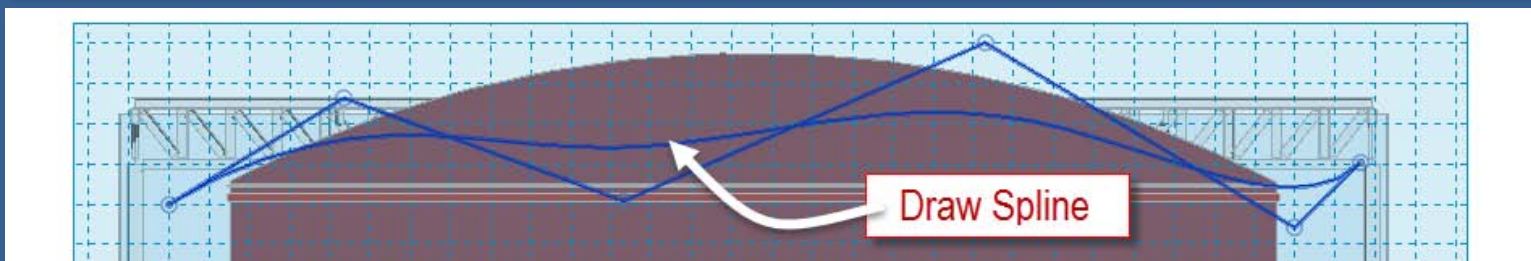
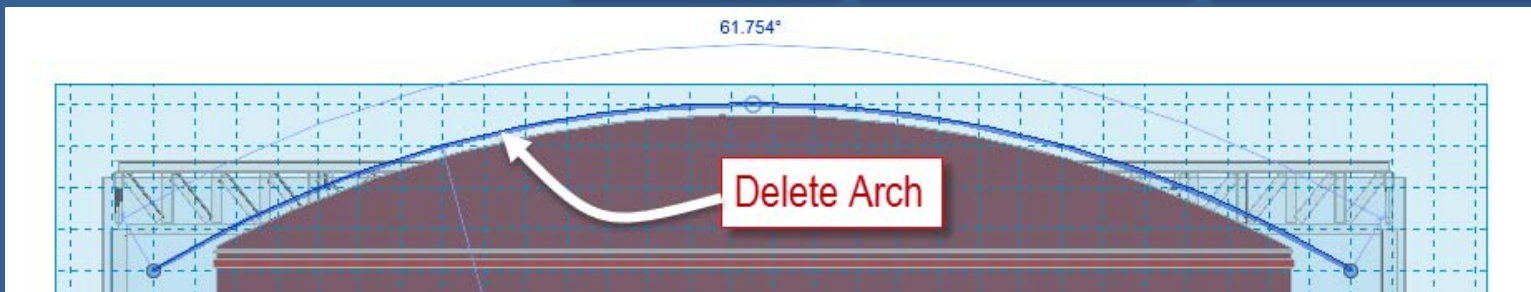
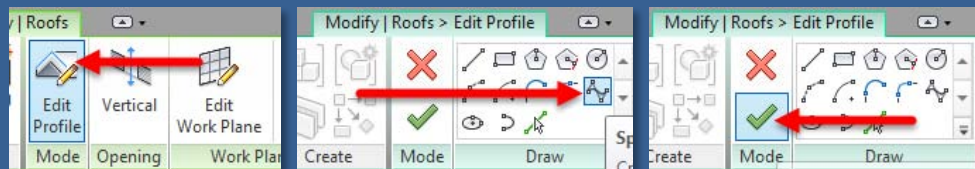
Spline

- Edit Profile
- Update
- Overview

Wrap-Up

GYM Roof : Roof by Extrusion : Edit Profile / Spline

- Save your file as:
Roof by extrusion
SPLINE



Project Day 06

GYM ROOF

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Roof by Extrusion

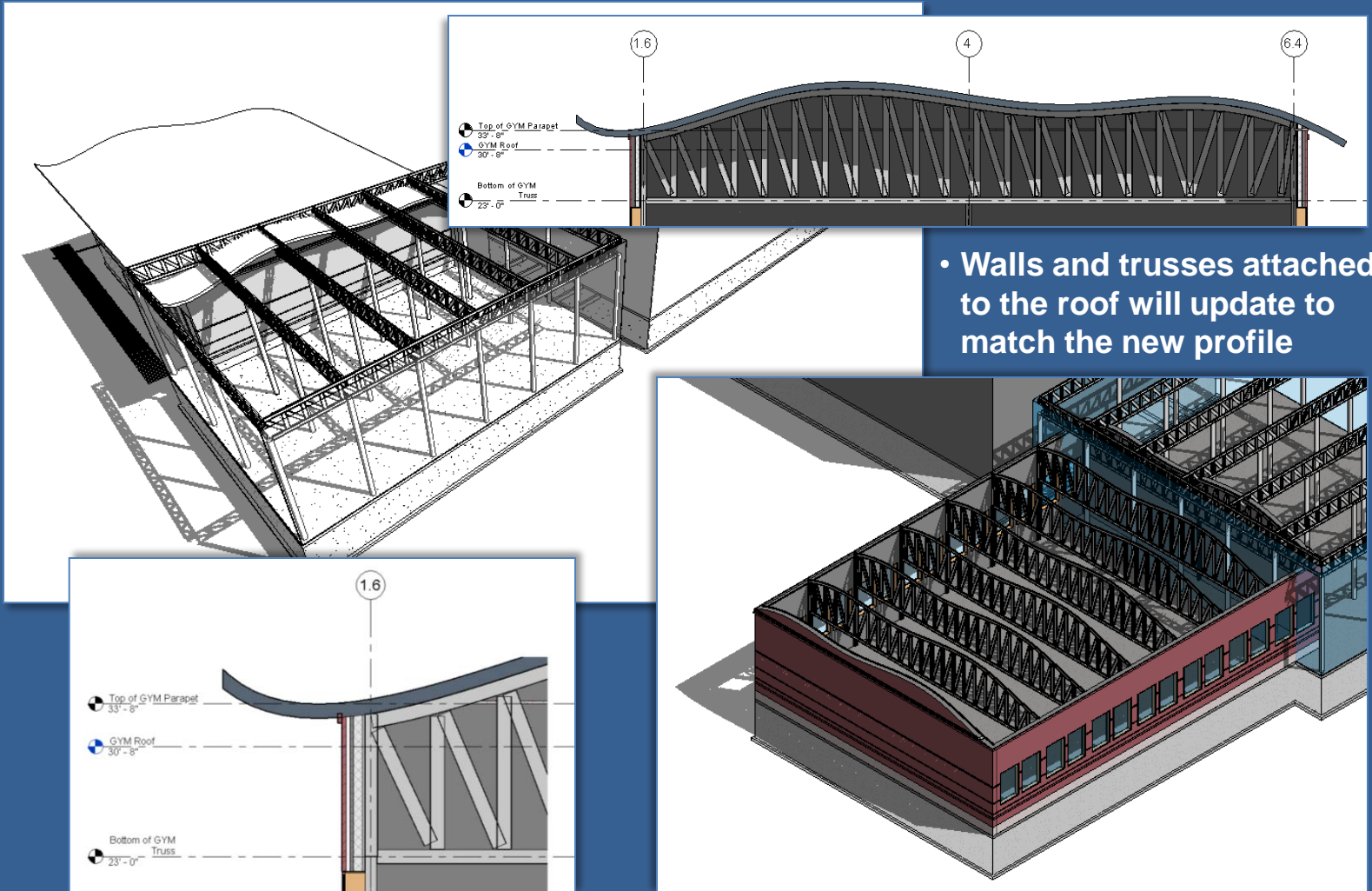
- Delete Roof
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Spline

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Wrap-Up

GYM Roof : Roof by Extrusion : Edit Profile / Spline



Project Day 06

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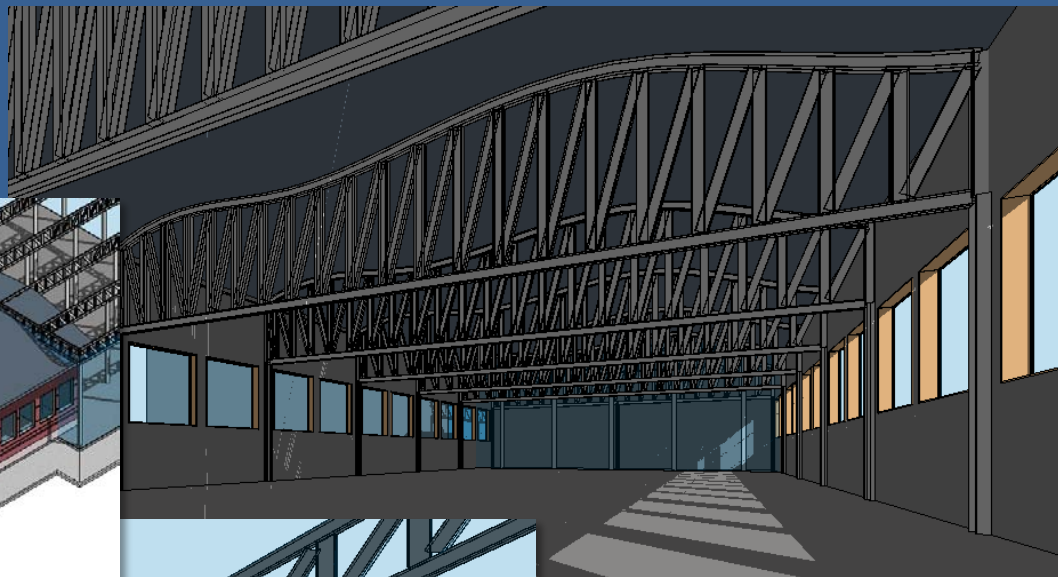
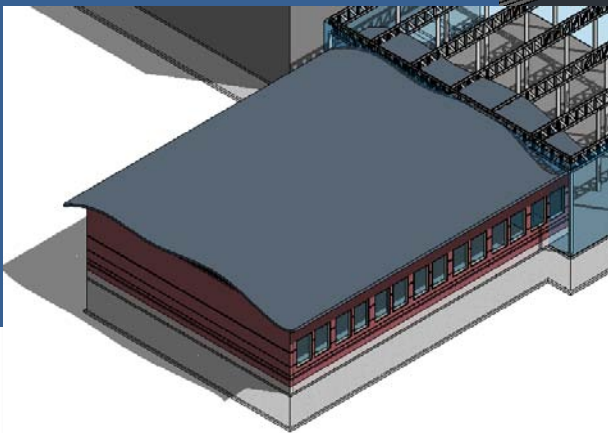
Spline

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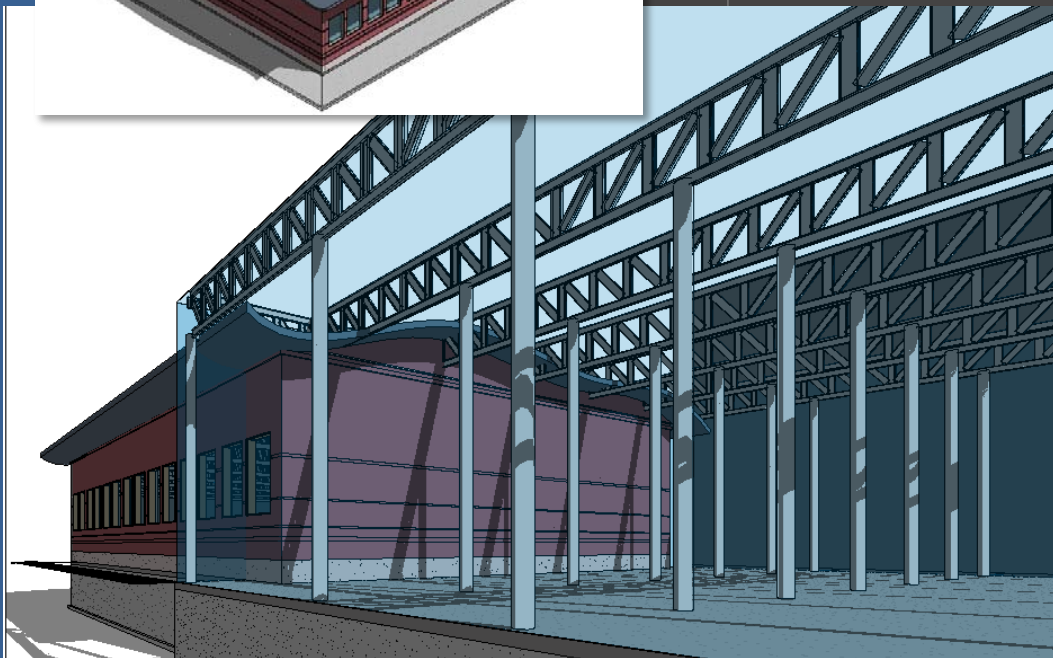
Wrap-Up

Spline Roof

• Isometric



• Interior View



• Exterior View

Project Day 06

GYM ROOF

- Add Levels
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Roof by Footprint

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Spline

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Wrap-Up

Day 17 / Revit Day 09 / Project Day 06 - Wrap Up

GYM ROOF

- Add Levels
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